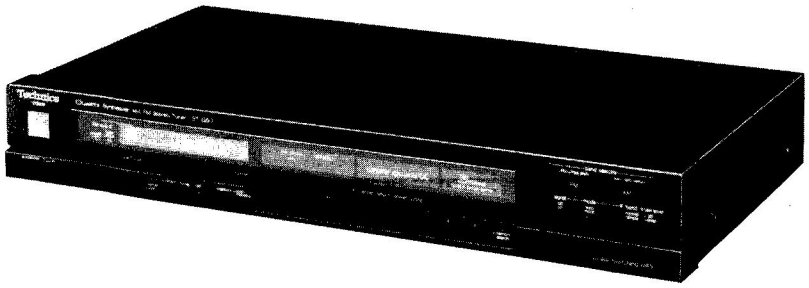
ORDER NO. HAD8602349C2

Service Manual

Tuner

QUARTZ Synthesizer AM/FM Stereo Tuner

ST-G50



Color

(K)...Black Type
(S)...Silver Type

Color	Areas
(K) (S)	[EGB] .....F.R Germany.
(K) (S)	[Ei].....Italy.

• Please use this manual together with the service manual for model No. ST-G50/G50L (Original) order No. HAD8602347C8.

SPECIFICATIONS

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50~108.00 MHz
	87.525~108.00 MHz (+25 kHz shift)
Sensitivity	1.5 μV (IHF, usable)
S/N 30 dB	1.3 μV (75Ω)
S/N 26 dB	1.2 μV (75Ω)
S/N 20 dB	0.9 μV (75Ω)
IHF 46 dB stereo quieting sensitivity	28 μV/75Ω
Total harmonic distortion	
MONO (normal)	0.02%
STEREO (normal)	0.03%
S/N	
MONO	72 dB (80 dB, IHF)
STEREO	66 dB (73 dB, IHF)
Frequency response	4 Hz~18 kHz, +0.5 dB~−1.5 dB
Alternate channel selectivity	
normal ±400 kHz	50 dB
super narrow ±200 kHz	25 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	100 dB
IF rejection at 98 MHz	100 dB
Spurious response rejection at 98 MHz	110 dB
AM suppression	55 dB
Stereo separation	
1 kHz	60 dB
10 kHz	45 dB
Carrier leak	
19 kHz	−55 dB (−60 dB, IHF)
38 kHz	−40 dB (−45 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	±1.0 dB
Limiting point	0.85 μV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	
	522 kHz~1611 kHz (9 kHz-steps)
	530 kHz~1620 kHz (10 kHz-steps)
Sensitivity (S/N 20 dB)	20 μV, 300 μV/m
Selectivity at 999 kHz (±9 kHz)	50 dB
Image rejection at 999 kHz	40 dB
IF rejection at 999 kHz	60 dB

Technics

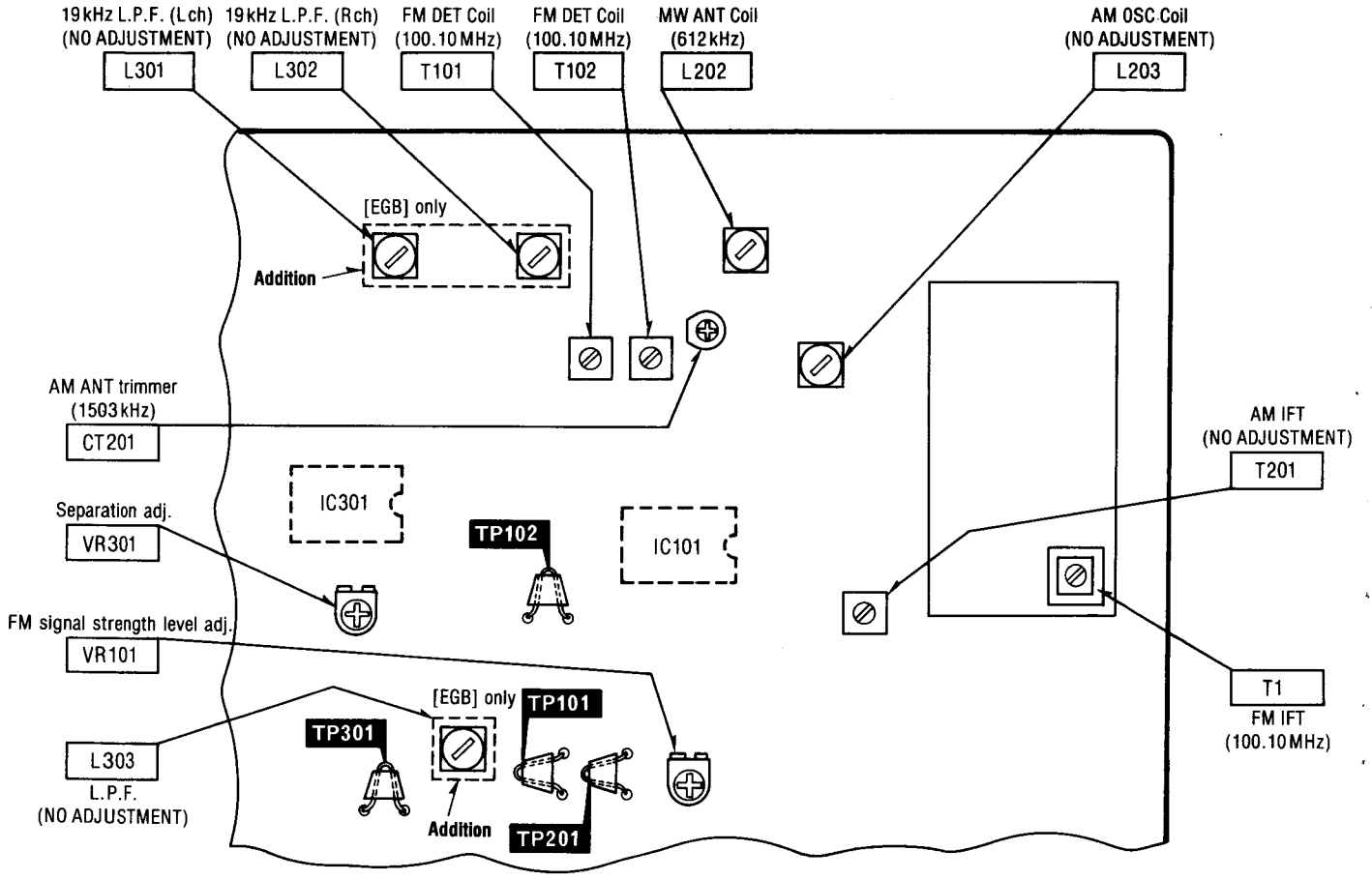
Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

■ MEASUREMENTS AND ADJUSTMENTS (ADDITION AND DIFFERENCE)

Addition

Note: For **T201** (AM-IFT), **L203** (AM OSC coil), **L303** (L.P.F.) and **L301**, **L302** (19kHz L.P.F.), adjusted parts are supplied. So do not turn the cores of these parts.

• Adjustment points (ADDITION)



■ MEMORY PRESETTINGS

The indication AM used here includes both MW and LW for Model ST-G50L.

Important!

This antenna must be installed to receive AM broadcasts.

AM loop antenna (included)

With this unit you may preset as many as 39 radio broadcast stations: AM/FM random presetting. After broadcast stations have been preset as described below, any desired station can be quickly and easily selected by simply touching one button.

Automatic memory presetting

ST-G50 The FM broadcasting stations and AM broadcasting stations will be automatically preset to "channels" 1 through 39 for FM and 21 through 39 for AM, respectively.

ST-G50L The FM broadcasting stations, MW broadcasting stations, and LW broadcasting stations will be automatically preset in "channels" 1 through 39 for FM, 21 through 39 for MW, and 31 through 39 for LW, respectively.

Note: When AM is automatically preset, the FM stations on "channels" 21 through 39 will be replaced by the new AM stations.

1 **Power: "on" (■→ ▲)**

3 **Set to the lowest frequency.**

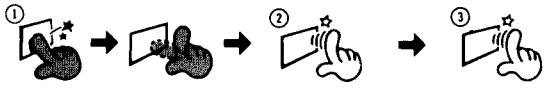
ST-G50
- **FM: 87.50 MHz** (0.05-MHz steps)
- **AM: 522 kHz** (9-kHz steps) **or 530 kHz** (10-kHz steps)
  (For Europe, South Africa and Australia)
  531 kHz (9-kHz steps) **or 530 kHz** (10-kHz steps)
  (For Saudi Arabia and others)

ST-G50L
- **FM: 87.50 MHz** (0.05-MHz steps)
- **MW: 522 kHz** (9-kHz steps) **or 530 kHz** (10-kHz steps)
- **LW: 153 kHz** (9-kHz steps: -2kHz shift) **or 155 kHz** (9-kHz steps)

① Press the button and hold slightly (frequency will change continuously).

② Release it when approaching the above exact frequency, and then press the button again momentarily (frequency change will stop).

③ Press the button momentarily (frequency will change each time the button is pressed), and tune to one of the above frequencies.



2 ST-G50

"FM": for FM broadcasts
"AM": for AM broadcasts

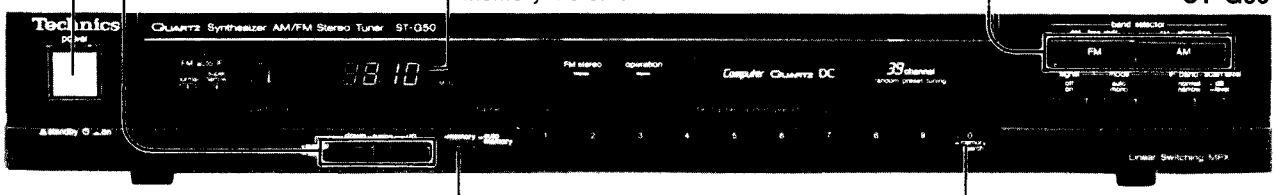
ST-G50L

"FM": for FM broadcasts
"MW": for MW broadcasts
"LW": for LW broadcasts

Before presetting the broadcasting stations, press to select the appropriate frequency step for your locality.

Memory indicator

ST-G50



4 **Press. When the memory indication illumination stops, release.**

The frequency will change upward, and the automatic presetting will begin with the next broadcasting station.
It will continue to preset the following consecutive broadcast stations.

Notes:

1. For automatic presetting in areas where there are less than 39 FM stations, the remaining channels (through channel 39) will be left empty. The empty channels can be filled by using manual memory presetting.
2. If a new broadcasting station is preset into a channel, the broadcasting station which was previously entered in that channel will be automatically erased. Then reset the memory.
3. For AM broadcasts with extremely strong signal transmissions, the frequency memorized may be slightly off of the correct frequency. If this occurs, use the manual control to memorize.

5 **Confirm the names (call signs, etc.) of the broadcasting stations which are preset to each channel, and enter them on the file sheet.**

Press and hold the button.

(The memorized frequency and "channel" number will be shown one after the other in order.)

Manual memory presetting

Stations can be freely preset to any desired channel.

1 **Power: "on" (■→ ▬)**

2 ST-G50

"FM": for FM broadcasts
"AM": for AM broadcasts

ST-G50L

"FM": for FM broadcasts
"MW": for MW broadcasts
"LW": for LW broadcasts

Before presetting the broadcasting stations, press to select the appropriate frequency step for your locality.

3 **Press the appropriate tuning button to tune to the desired broadcast.**

- **Automatic tuning**

Press the button. When the frequency indication begins to change, release the button (a broadcasting station will be selected automatically). Repeat this operation until the desired station is found.

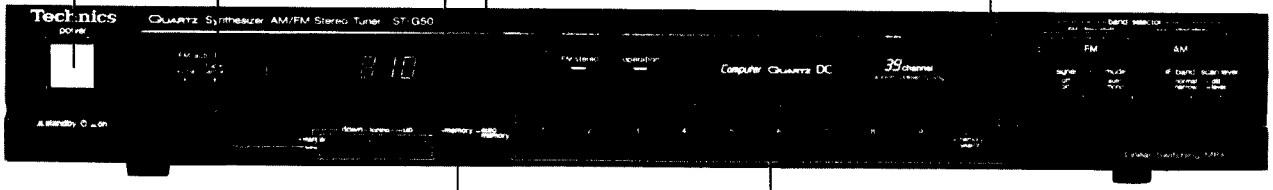
- **Manual tuning**

Press the button momentarily and tune to the desired station. The frequency will change each time the button is pressed.

Memory indicator

Channel display

ST-G50



4 **Press momentarily, and then release.**

(The memory indicator will illuminate for approximately 4 seconds.)

Note:
If the button is pressed continuously, the frequency will begin to change, and the memory will be preset automatically. To stop the automatic memory presetting, once again press either the "up" button or the "down" button.

5 **While the memory indicator is illuminated, press the button of the desired channel.**

When the button is pressed, the memory indicator illumination will stop, and the presetting is complete.

- **To preset channels 1 through 9:**

Press the button momentarily, and then release.

- **To preset channels 10 through 39:**

To select channel 19, for example, press button 1 and then press button 9.

- For "channels" 10 to 19 ...
  Press button 1 and the second digit (0 ~ 9).
- For "channels" 20 to 29 ...
  Press button 2 and the second digit (0 ~ 9).
- For "channels" 30 to 39 ...
  Press button 3 and the second digit (0 ~ 9)

Note:
If the memory indication illumination stops before you press the button, once again repeat step ④ and then step ⑤.

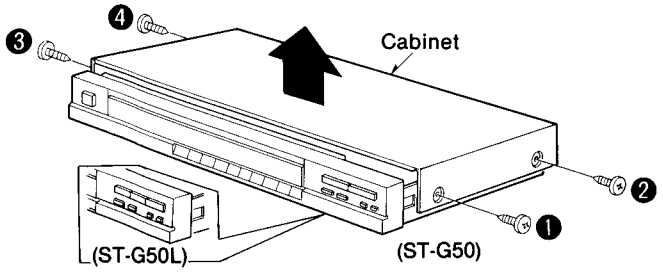
6 **Enter the name (call sign, etc.) of the preset broadcasting station on the station memory file sheet.**

This completes the procedures for presetting radio broadcast frequencies. The other preset-tuning buttons can be preset in the same way by following steps ② through ⑤.

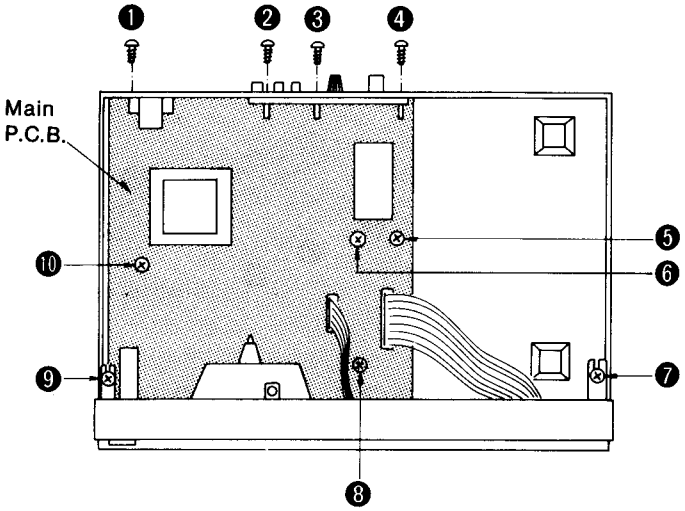
Note:
If a new broadcasting station is preset into a channel, the broadcasting station which was previously entered in that channel will be automatically erased. Then reset the memory.

■ DISASSEMBLY INSTRUCTIONS

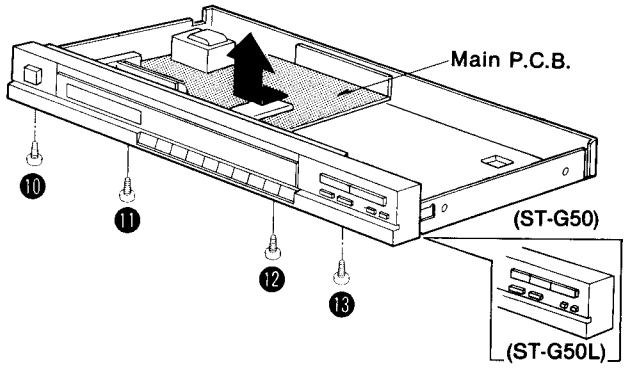
Ref. No. 1	How to remove the cabinet
Procedure 1	• Remove the 4 screws. (❶~❹)



Ref. No. 2	How to remove the main P.C.B.
Procedure 1 → 2	• Remove the 10 screws. (❶~⑩)

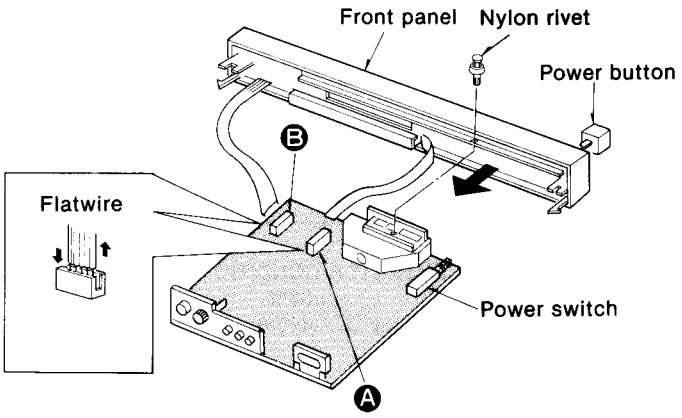


• Remove the 4 screws. (⑩~⑬)

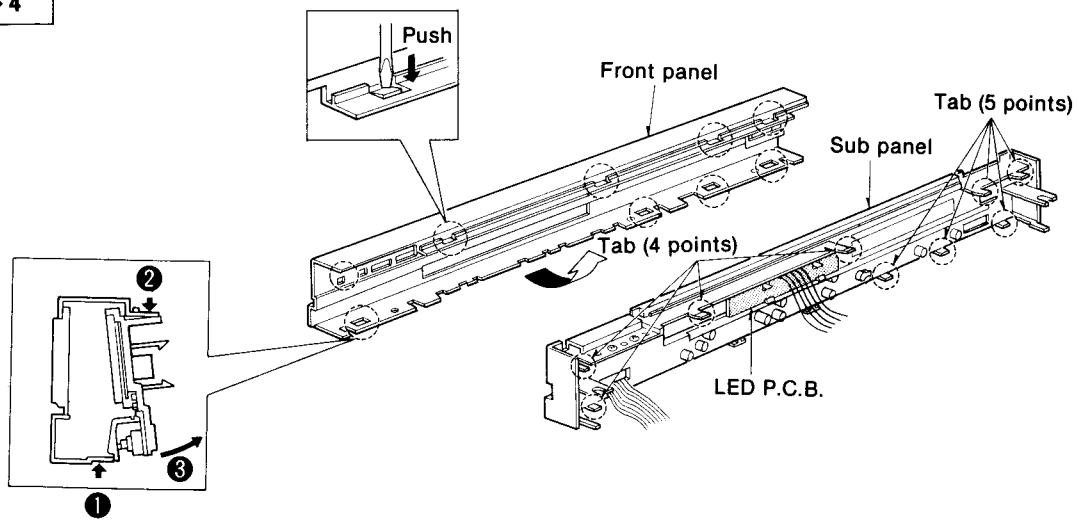


• Slightly pull the front panel toward you and remove the main P.C.B.

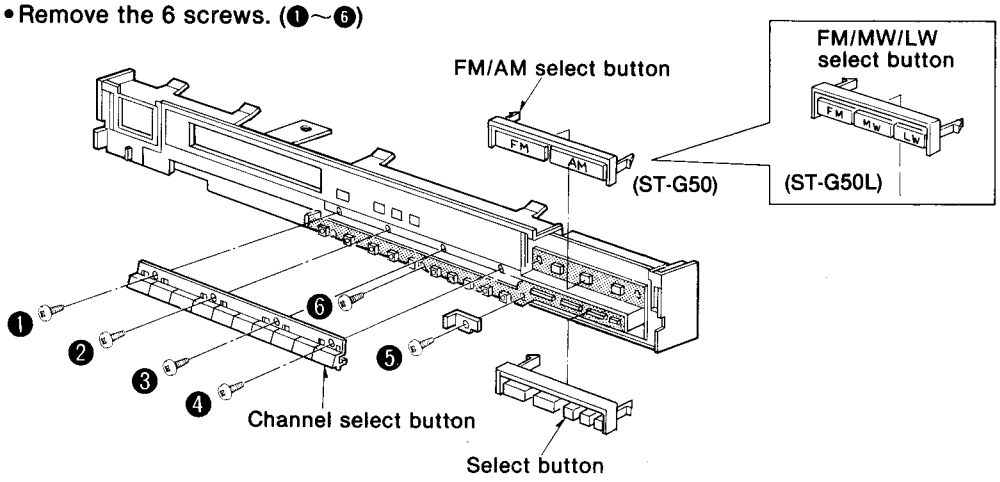
Ref. No. 3	How to remove the front panel
Procedure 1 → 2 → 3	• Remove the power button. • Remove the 1 Nylon rivet. • Remove the 2 flatwires (Ⓐ, Ⓑ).



Ref. No. 4	How to remove the sub panel
Procedure 1 → 2 → 3 → 4	• Push out the 9 tabs on the bottom and top side of the sub panel by used minusdriver.



Ref. No. 5	How to remove the FM/AM (MW/LW)/Channel switch
Procedure 1→2→3→4→5	• Remove the 6 screws. (❶~❻)



■ MEASUREMENTS AND ADJUSTMENTS

AM/FM (ST-G50)
LW/MW/FM (ST-G50L)

Control positions and equipment used

- AM and FM signal generator (AM and FM-SG)
- Stereo modulator
- Distortion analyser
- Oscilloscope
- AC and DC electronic voltmeter (EVM)
- Frequency counter
- Choke coil (100μH)
- Resistor (100kΩ)
- Ceramic capacitor (200pF)

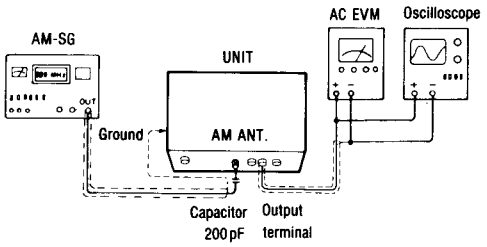
Note: For **T201** (AM (MW) IFT), **L203** (MW OSC coil) and **L251** (LW antenna coil), adjusted parts is supplied. So, do not turn the cores of this parts.

AM (MW)-RF ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "**AM (MW)**" position.
3. Place the radio frequency display and signal generator setting to **612kHz**.
4. Adjust **L202** for maximum output.
5. Place the radio frequency display and signal generator setting to **1503kHz**.
6. Adjust **CT201** for maximum output.
7. Repeat steps 3.~6.

Note:
Antenna input level must be as low as possible being free from AGC.

AM SIGNAL GENERATOR CONDITION
Modulation.....30%
Modulation frequency.....400Hz

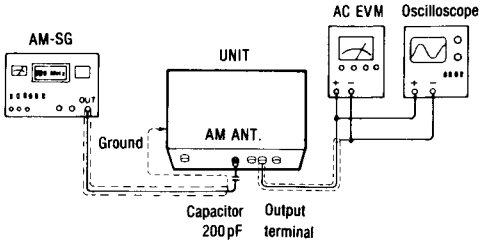


LW-RF ADJUSTMENT (ST-G50L only)

1. Test equipment connection is shown in figure.
2. Set the unit to "**LW**" position.
3. Place the radio frequency display and signal generator setting to **155kHz**.
4. Adjust **L252** for maximum output.
5. Place the radio frequency display and signal generator setting to **353kHz**.
6. Adjust **CT251** for maximum output.
7. Repeat steps 3.~6.

Note:
Antenna input level must be as low as possible being free from AGC.

AM SIGNAL GENERATOR CONDITION
Modulation.....30%
Modulation frequency.....400Hz



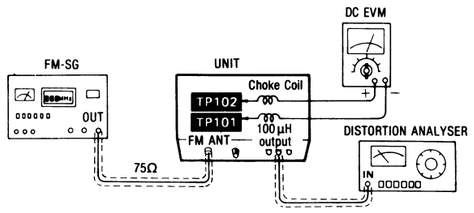
FM MONO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "**FM**" and "**normal**" position.
3. Place the radio frequency display and signal generator setting to **100.10MHz**.
4. Adjust **T101** core so that voltage measured in signal mode is **0mV** in 300mV range.
5. Adjust **T102** so that the distortion factor of Lch is minimized.
6. Repeat steps 4 and 5 a few times.
7. Make sure that the distortion factors of Lch and Rch are nearly the same with each other to minimum.

Note:

The adjusting screwdriver used should be made of resin.

FM SIGNAL GENERATOR CONDITION
Modulation.....100%
Modulation frequency.....1kHz
Output level.....66dB



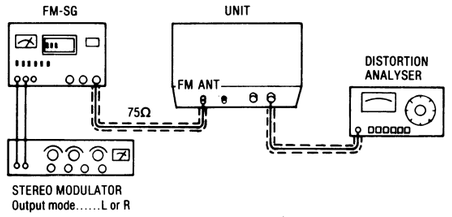
FM STEREO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "**FM**" position.
3. Place the radio frequency display and signal generator setting to **100.10MHz**.
4. Adjust **T1** so that the distortion factor of Lch is minimized.
5. Make sure that the distortion factors of Lch and Rch are nearly the same with each other to minimum.

Note:

The adjusting screwdriver used should be made of resin.

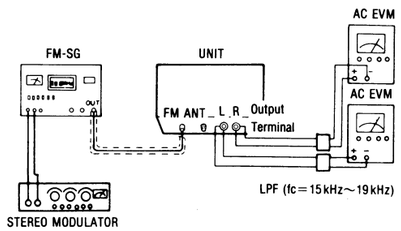
FM SIGNAL GENERATOR CONDITION
Modulation.....“L” mode or “R” mode 45%, pilot 10%
Modulation frequency.....1kHz, Pilot (19kHz)
Output level.....66dB



SEPARATION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "**FM**" position.
3. Place the radio frequency display and signal generator setting to **100.10MHz**.
4. Adjust **VR301** so that R output is minimized when stereo modulator is in "**L**" (Lch modulation) mode.

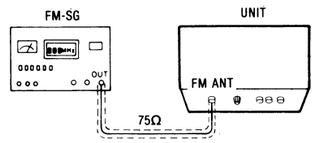
FM SIGNAL GENERATOR CONDITION
Modulation.....“L” mode or “R” mode 45%, Pilot 10%
Modulation frequency.....1kHz, Pilot (19kHz)
Output level.....66dB



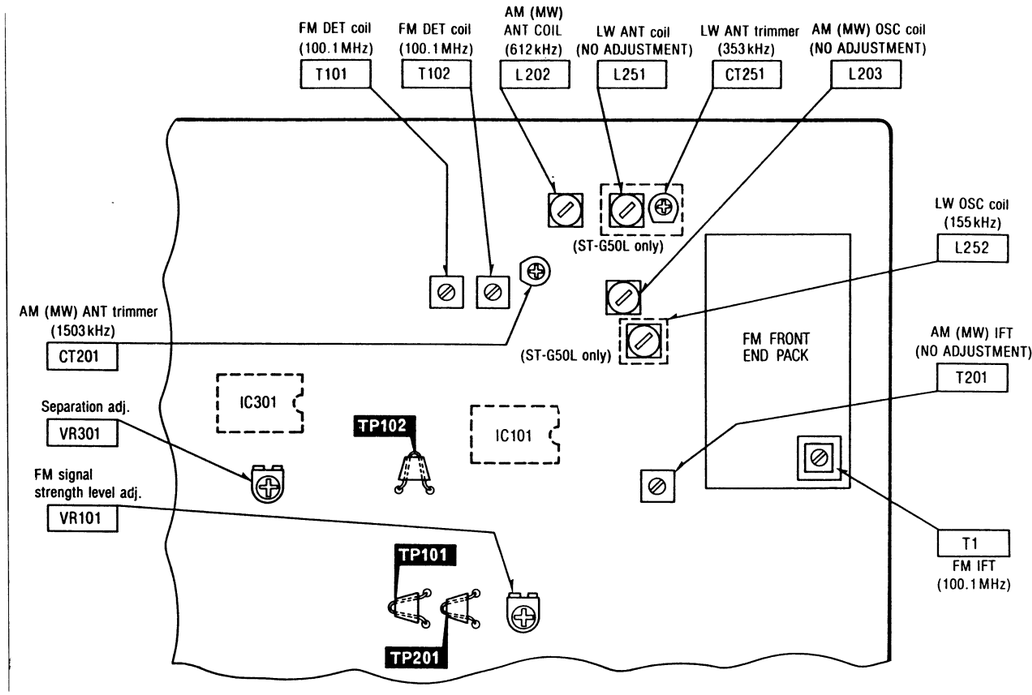
SIGNAL STRENGTH LEVEL ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "**FM**" and "**normal**" position.
3. Place the radio frequency display and signal generator setting to **100.10MHz**.
4. Change **LCD** display from frequency to **dB** by pressing the **FM** signal button.
5. Adjust **VR101** so that **54dB** in indicated.
6. Make sure that the signal strength level is **22~38dB** when the input is **30dB**.

FM SIGNAL GENERATOR CONDITION
Modulation.....30%
Modulation frequency.....1kHz
Output level.....66dB



• Adjustment points



■ FUNCTION OF TERMINAL (IC901: μPD1714G528)

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	———	NO	Not used in this unit.
2	OUTPUT (ST-G50L only)	E01	Error output of PLL. The frequency is output as a result of comparison between crystal frequency and FM or AM (MW/LW) station frequency.
3	OUTPUT	E02	
4	———	GND	Connected to ground.
5	INPUT	AM	Input for AM OSC output. 1.84V / 1.87V, 522kHz / 1629kHz
6	INPUT	FM	Input for FM OSC output frequency divided to 1/32 or 1/33 by pre-scaler.
7	INPUT	CE	Power supply detection. “H” input with it connected to home-use power outlet socket. H → 4V, L → 0V
8	———	GND	Ground terminal.
9	OUTPUT	MUTE	This is the output terminal to eliminate shock noise due to unlocking at PLL. <Muting output> 1. Pin 7 (CE) is L → H or H → L. 2. Power switch “off”. 3. Frequency change. [(up/down, FM ↔ AM (MW/LW)] 4. FM IF selection. 4.8V / 0V Muting output operation
10	OUTPUT	REC	Not used in this unit.
11	OUTPUT	EM	Main memory and sub-memory selection for IC902.
12	OUTPUT	SDC	Usually “H”, “L” output in “preset tuning, up/down and band selector” operation.
13	OUTPUT	AM select	“H” output in AM mode.

PIN NO.
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28~39
40~55
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59~62
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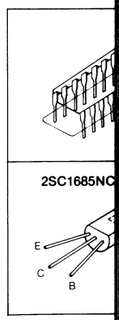
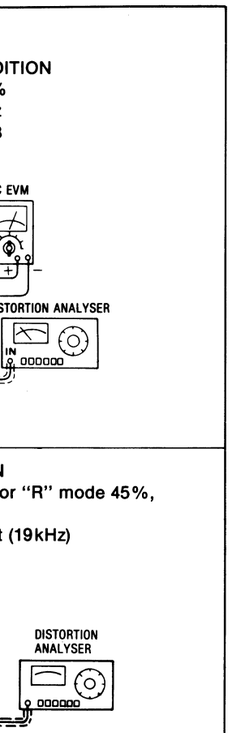
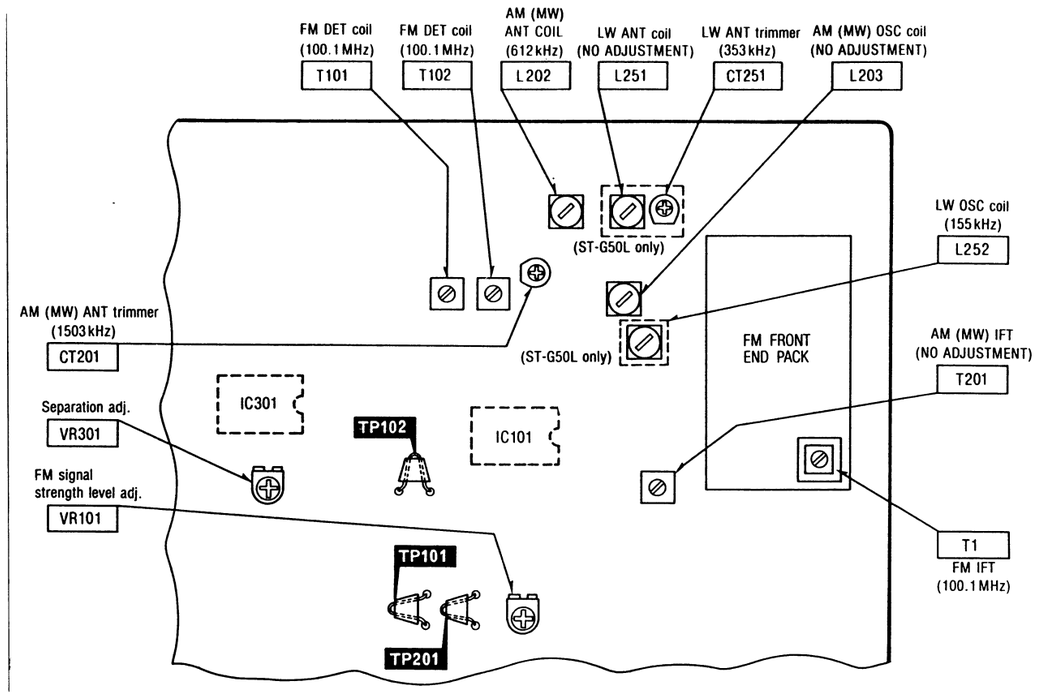
64

■ TERM





• **Adjustment points**



■ FUNCTION OF TERMINAL (IC901: μPD1714G528)

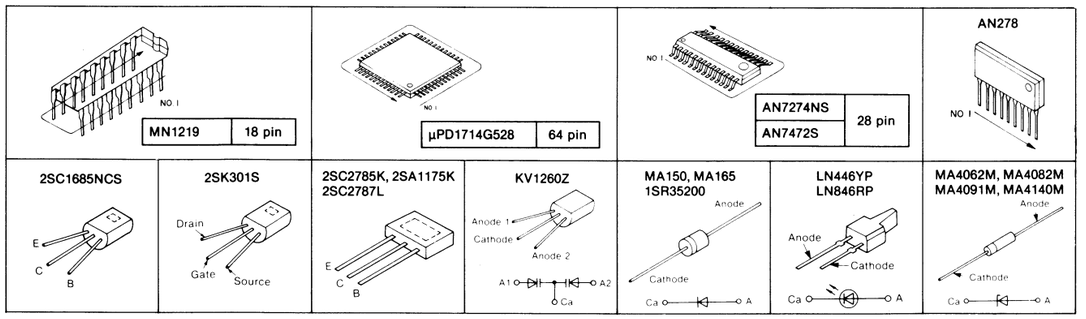
PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
1	———	NO	Not used in this unit.
2	OUTPUT (ST-G50L only)	E01	Error output of PLL. The frequency is output as a result of comparison between crystal frequency and FM or AM (MW/LW) station frequency.
3	OUTPUT	E02	
4	———	GND	Connected to ground.
5	INPUT	AM	Input for AM OSC output. 1.84V, 1.87V, 522kHz, 1629kHz
6	INPUT	FM	Input for FM OSC output frequency divided to 1/32 or 1/33 by pre-scaler.
7	INPUT	CE	Power supply detection. "H" input with it connected to home-use power outlet socket. H → 4V, L → 0V
8	———	GND	Ground terminal.
9	OUTPUT	MUTE	This is the output terminal to eliminate shock noise due to unlocking at PLL. <Muting output> 1. Pin 7 (CE) is L → H or H → L. 2. Power switch "off". 3. Frequency change. [(up/down, FM ↔ AM (MW/LW)] 4. FM IF selection. 4.8V, 0V, Muting output operation
10	OUTPUT	REC	Not used in this unit.
11	OUTPUT	EM	Main memory and sub-memory selection for IC902.
12	OUTPUT	SDC	Usually "H", "L" output in "preset tuning, up/down and band selector" operation.
13	OUTPUT	AM select	"H" output in AM mode.

PIN NO.	IN/OUT	MARK	DESCRIPTION OF TERMINAL
14	———	FM select	Not used in this unit.
15	OUTPUT (ST-G50L only)	LM select	"H" output in LW mode.
16	———	SLEEP	Not used in this unit.
17	———	POWER	Not used in this unit.
18	INPUT	REMOTE	Remote control input terminal.
19	INPUT	SD	Station detection. 1. Signal received → H 2. NO signal → L
20	OUTPUT	IF SW	FM IF range selection. 1. Super narrow mode → L 2. Normal mode → H
21	OUTPUT	MONO	Forcible monaural selection. 4.8V, 0V, Forcible monaural mode
22	———	STAND BY	Not used in this unit.
23	OUTPUT	$\overline{CE}$	Chip enable control for IC902.
24	OUTPUT	X OUT	Connecting terminal for crystal oscillator. The crystal connected is at 4.5MHz.
25	INPUT	X IN	
26	INPUT	V_{DD}	Power supply terminal. (4.8V)
27	OUTPUT	CGP	Clock pulse waveform output. (FM) 4.8V, 0V, 50% 50%, (1kHz)
28~39	OUTPUT	S27~S16	Segment signal output for LCD display.
40~55	OUTPUT	S15~S0	Segment signal output and key source signal output for LCD display. LCD seg. KS LCD seg. KS LCD seg. KS, 333μs, 10ms, LCD seg. : LCD display data, KS : Key source data
56	OUTPUT	COM0	Common of LCD. 5V, 2.5V, 0, 5msec.
57		COM1	
58	INPUT	V_{DD}	Power supply terminal.
59~62	INPUT	K3~K0	Input terminal for key return signal from external key matrix. [KEY MATRIX]
63	INPUT	AD	Electromagnetic field intensity level input is changed from analog to digital.
64	INPUT	$\overline{INT}$	Remote control input terminal.

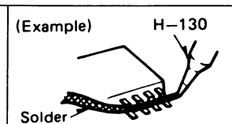
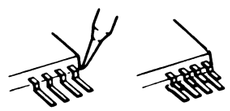
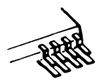
[KEY MATRIX]

Pin No.	40	41	42	44	46	47
59	CH1	CH5	CH9	—	FM mode	—
60	CH2	CH6	CH0	FM	IF band	memo
61	CH3	CH7	—	LW	Scan level	up
62	CH4	CH8	—	MW (AM)	Signal	down

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES



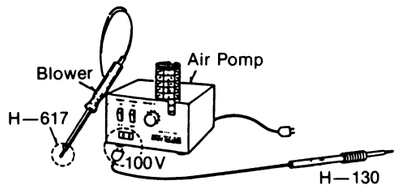
■ HOW TO REPLACE IC'S (Small outline type)

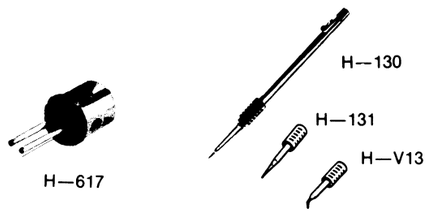
	Replacing procedure		Cautions
1	Reduce the amount of solder on each pin of the integrated circuit by use of a solder sucker.	(Example) H—130 	• Recommended tool .....Special soldering iron * H605M and H-130. * H605E and H-130. • Do not touch the soldering iron to the area for a long time. It may otherwise cause removal of the print foil. • When shifting the pin upward, do the job quickly while the solder is melting. If the solder is hard, it may cause removal or breakage of the print foil. • When using a pencil type soldering iron. 1. Completely remove the solder from each IC pin by use of solder sucker. 2. Raise each pin by means of an eyeleteer, hold the pliers then remove IC package from P.C.B.
2	Melt the solder on the pin (one electrode) with the soldering iron.		
3	While the solder is melting, shift the pin upward by the soldering iron to remove it from the foil.		
4	Remove each pin from the foil according to the above-mentioned procedure.		

*** Special soldering iron**
(Refer to Technical Information, ORDER NO. GAD84115476T8)

•H—605 Spot Heater (hot-air solder iron)
This device that uses hot air to melt solder was developed to remove Flat-Pakage ICs, RHCs and chip parts.

- H—605M (For 120V power source)
- H—605E (For 200V/220V/240V power source)





•H—617 Twin Nozzle (for spot heater)
Special nozzle for the removal of RHCs and chip resistors. (Nozzle diameter: 1.0mm×2)

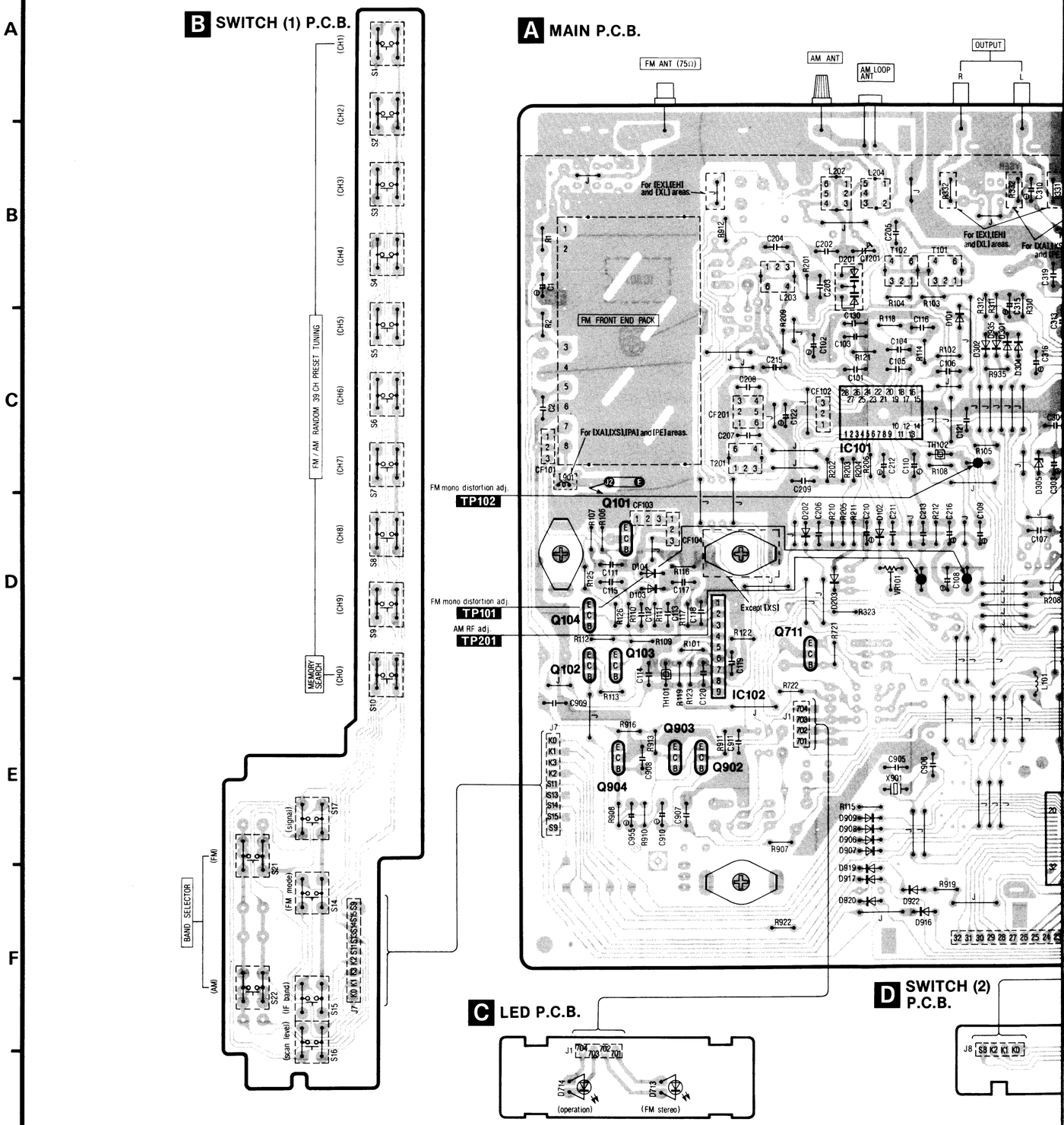
•H—130 Slim Pencil Solder Iron
An ultrasmall ceramic heater solder iron is extremely handy for soldering chip parts, RHCs, ICs etc., to high-density circuit boards.
Features:

•Rated power:	100V, 15W
•Max. temp.:	400°C
•Heater:	ceramic (long life)
•Insulation resistance:	100MΩ
•Length:	178mm
•Weight:	16g (not including cord)

•H—131, H—V13 Cap Bits
Solder tip for the slim pencil Solder Iron and is composed of a bit holder and a corrosion resistance solder tip.
Permits changing of solder tips even while still hot.

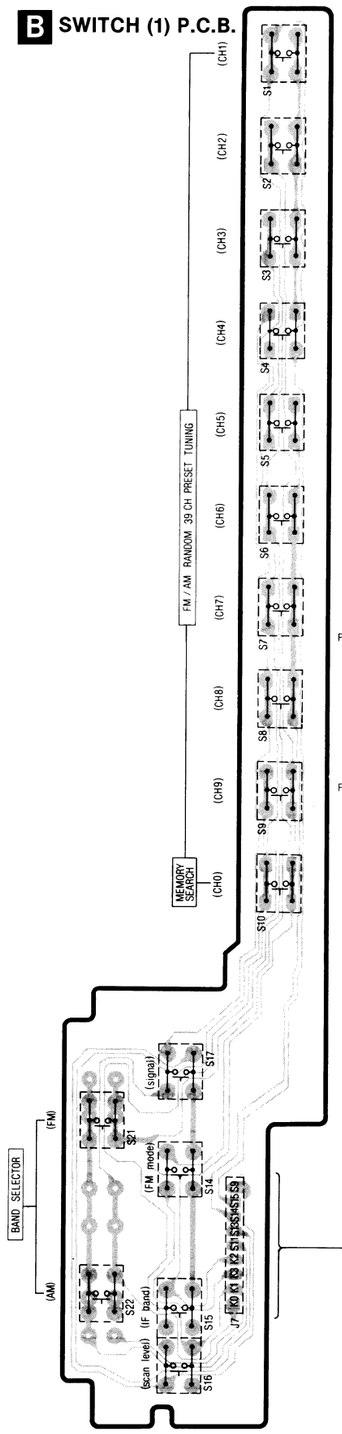
•Solder tip:	0.3mm

■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (ST-G50)

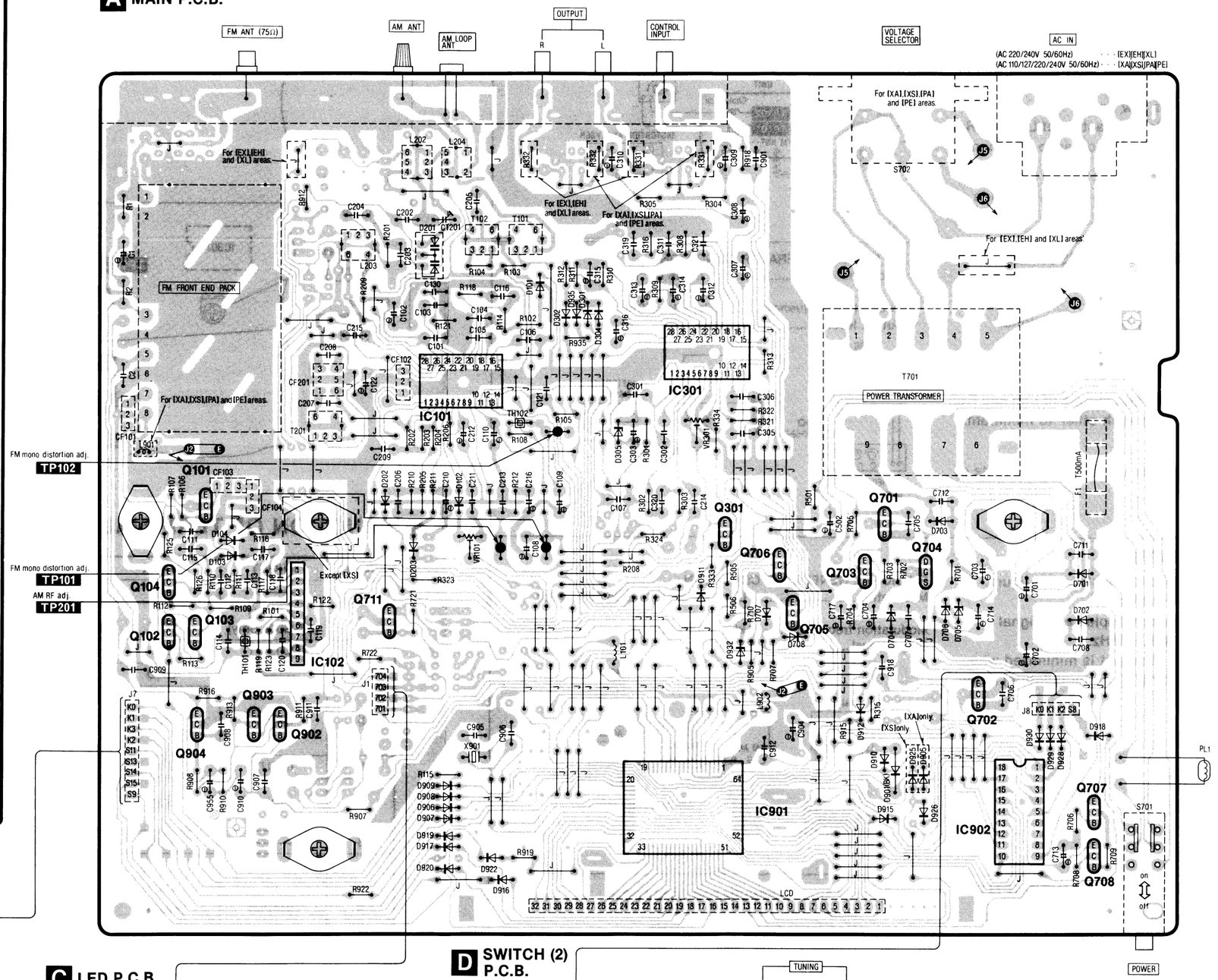


■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (ST-G50)

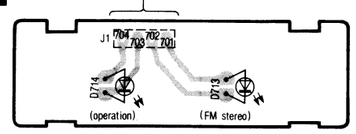
B SWITCH (1) P.C.B.



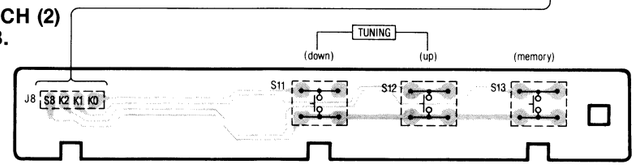
A MAIN P.C.B.



C LED P.C.B.



D SWITCH (2) P.C.B.



ORDER NO. HAD8602347C8

Service Manual

Tuner

QUARTZ Synthesizer AM/FM Stereo Tuner (ST-G50)

QUARTZ Synthesizer LW/MW/FM Stereo Tuner (ST-G50L)

ST-G50
ST-G50L

(ST-G50)

(ST-G50L)

Color

(K)...Black Type
(S)...Silver Type

Color	Areas
(K) (S)	[EX]....Continental Europe. (ST-G50/G50L)
(K) (S)	[EK]....United Kingdom. (ST-G50L)
(K) (S)	[EB]....Belgium. (ST-G50L)
(K) (S)	[EH] ...Holland. (ST-G50)
(K) (S)	[EF]....France. (ST-G50L)
(K) (S)	[XA]....Asia, Oceania, Latin America, Middle Near East and Africa. (ST-G50)
(K) (S)	[XL]....Australia. (ST-G50)
(K) (S)	[XS]....South Africa. (ST-G50)
(K) (S)	[PA]....For East PX. (ST-G50)
(K) (S)	[PE]....European Military. (ST-G50)

(DIN 45 500)

■ FM TUNER SECTION

Frequency range	87.50~108.00 MHz
	87.525~108.00 MHz (+25 kHz shift)
Sensitivity	1.5 μV (IHF, usable)
S/N 30 dB	1.3 μV (75Ω)
S/N 26 dB	1.2 μV (75Ω)
S/N 20 dB	0.9 μV (75Ω)
IHF 46 dB stereo quieting sensitivity	28 μV/75Ω
Total harmonic distortion	
MONO (normal)	0.02%
STEREO (normal)	0.03%
S/N	
MONO	72 dB (80 dB, IHF)
STEREO	66 dB (73 dB, IHF)
Frequency response	4 Hz~18 kHz, +0.5 dB~−1.5 dB
Alternate channel selectivity	
normal ±400 kHz	50 dB
super narrow ±200 kHz	25 dB
Capture ratio	1.0 dB
Image rejection at 98 MHz	100 dB
IF rejection at 98 MHz	100 dB
Spurious response rejection at 98 MHz	110 dB
(For South Africa only)	
Image rejection at 98 MHz	55 dB
IF rejection at 98 MHz	90 dB
Spurious response rejection at 98 MHz	80 dB
AM suppression	55 dB
Stereo separation	
1 kHz	60 dB
10 kHz	45 dB
Carrier leak	
19 kHz	−55 dB (−60 dB, IHF)
38 kHz	−40 dB (−45 dB, IHF)
Channel balance (250 Hz~6,300 Hz)	±1.0 dB
Limiting point	0.85 μV
Bandwidth	
IF amplifier	180 kHz
FM demodulator	1000 kHz
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION (ST-G50)

Frequency range	
(For Europe, South Africa and Australia)	
	522 kHz~1611 kHz (9 kHz-steps)
	530 kHz~1610 kHz (10 kHz-steps)
(For Saudi Arabia and others)	
	531 kHz~1620 kHz(9 kHz-steps)
	530 kHz~1610 kHz (10 kHz-steps)
Sensitivity (S/N 20 dB)	20 μV, 300 μV/m
Selectivity at 999 kHz (±9 kHz)	50 dB
Image rejection at 999 kHz	40 dB
IF rejection at 999 kHz	60 dB

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Panasonic Tokyo Office
Matsushita Electric Trading Co., Ltd.
6th Floor, World Trade Center Bldg.,
No. 4-1, Hamamatsu-cho 2-Chome, Minato-ku,
Tokyo 105, Japan

■ AM TUNER SECTION (ST-G50L)

Frequency range	
MW	522 kHz~1611 kHz (9 kHz-steps)
	530 kHz~1610 kHz (10 kHz-steps)
LW	155 kHz~353 kHz (9 kHz-steps)
	153 kHz~351 kHz (−2 kHz shift)
Sensitivity (S/N 20 dB)	
MW	20 μV, 300 μV/m
LW	50 μV
Selectivity (±9 kHz)	
MW (at 999 kHz)	50 dB
LW (at 254 kHz)	50 dB
Image rejection	
MW (at 999 kHz)	40 dB
LW (at 254 KHz)	40 dB
IF rejection	
MW (at 999 kHz)	60 dB
LW (at 254 KHz)	35 dB

■ GENERAL

Output voltage	0.3V (0.6V IHF)
Power consumption	9W
Power supply	
For United Kingdom and Australia	AC 50 Hz/60 Hz, 240V
For continental Europe	AC 50 Hz/60 Hz, 220V
For others	AC 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (W×H×D)	430 × 64 × 241 mm
	(16-30/32" × 2-17/32" × 9-1/2")
Weight	2.2 kg
	(4.8 lb.)

Notes:

1. Total harmonic distortion is measured by the digital spectrum analyzer (H.P. 3045 system).
2. Specifications are subject to change without notice. Weight and dimensions shown are approximate.

■ CONTENTS

	Page
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MEMORY PRESETTINGS	3
DISASSEMBLY INSTRUCTIONS	5
MEASUREMENTS AND ADJUSTMENTS	6~8
FUNCTION OF TERMINAL (IC901: μPD1714G528)	8
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES	9
HOW TO REPLACE IC'S (SMALL OUTLINE TYPE)	10
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (ST-G50)	11
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (ST-G50L)	13
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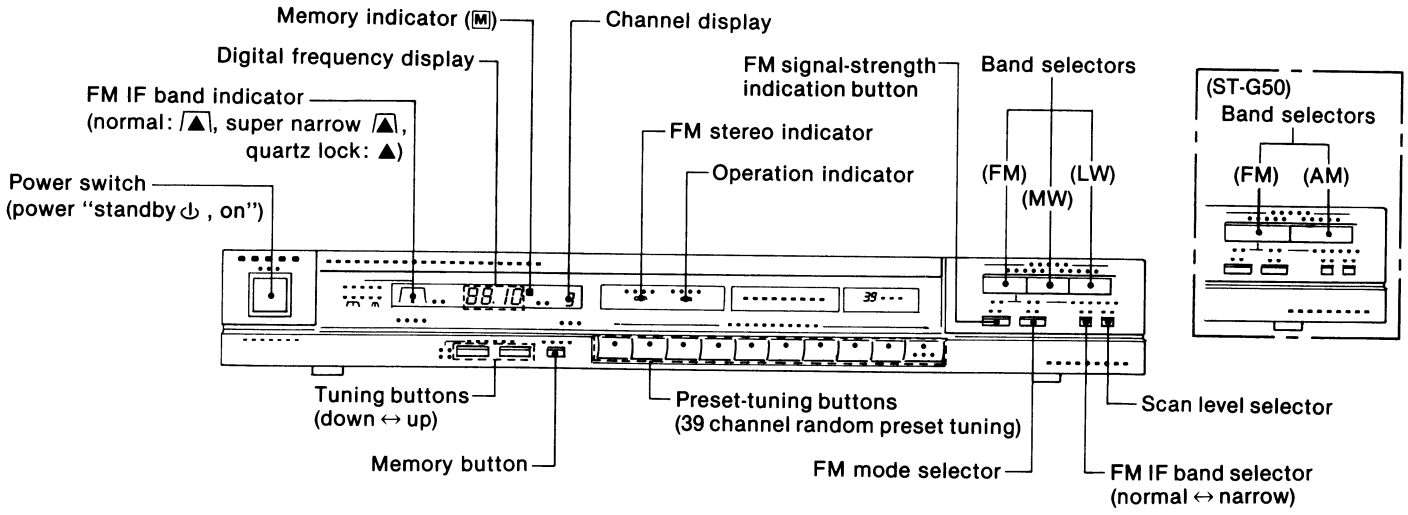
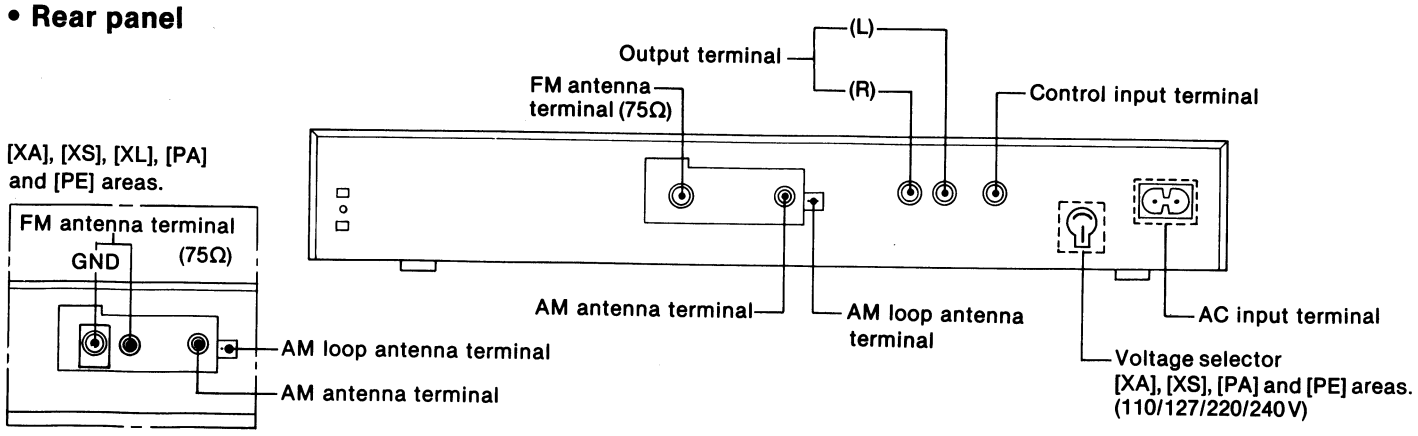
DESCRIPTION OF LCD PANEL	17
RESISTORS AND CAPACITORS	18
SCHEMATIC DIAGRAM (ST-G50)	19
SCHEMATIC DIAGRAM (ST-G50L)	21
REPLACEMENT PARTS LIST	25
EXPLODED VIEW	27

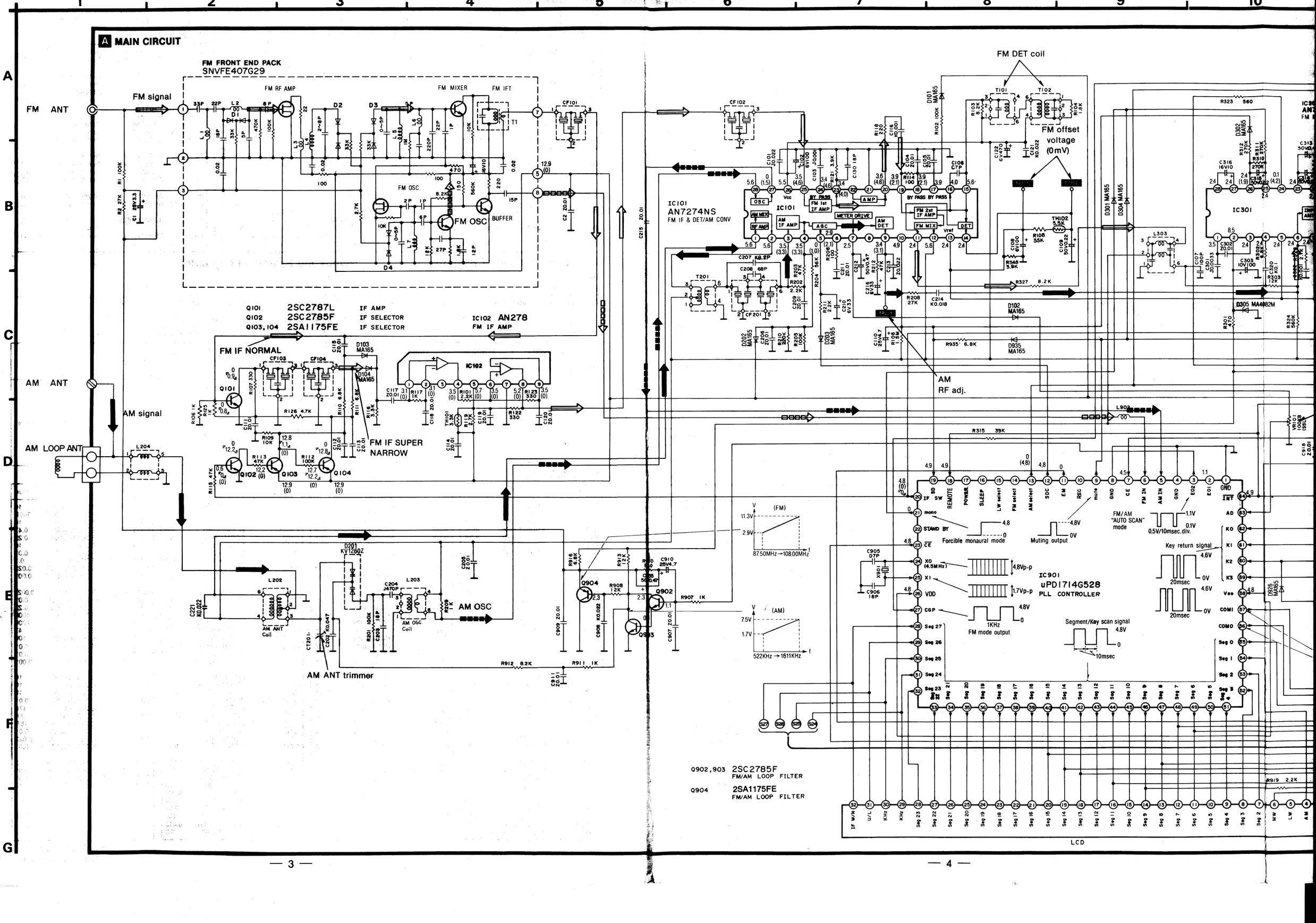
■ LOCATION OF CONTROLS

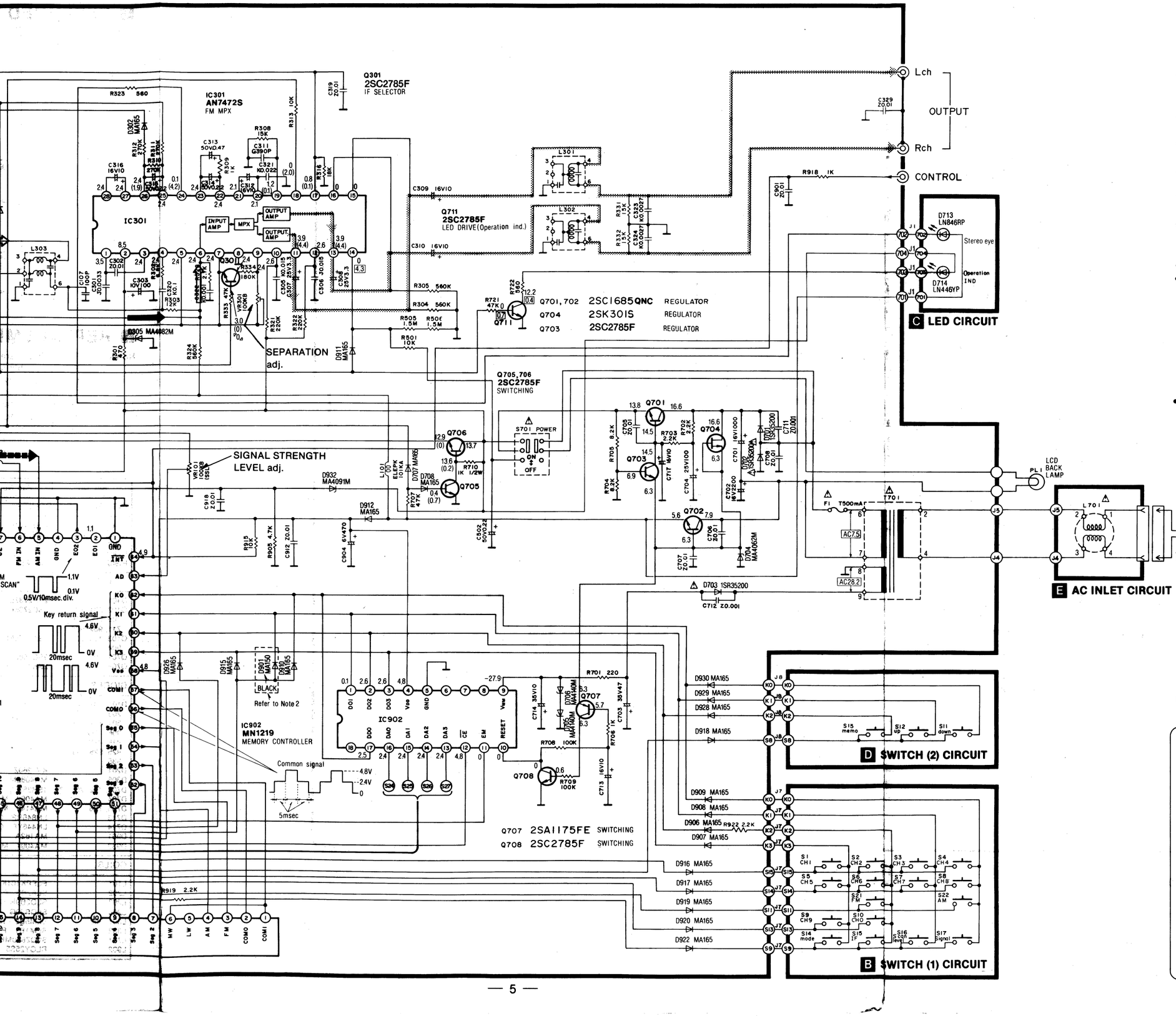
• Front panel (ST-G50L)


Memory indicator (M)
Channel display
Digital frequency display
FM signal-strength indication button
Band selectors
FM IF band indicator (normal: /▲\, super narrow /▲\, quartz lock: ▲)
FM stereo indicator
Power switch (power "standby ⏻, on")
Operation indicator
(FM) (LW) (MW)
(ST-G50) Band selectors
(FM) (AM)
Tuning buttons (down ↔ up)
Preset-tuning buttons (39 channel random preset tuning)
Scan level selector
Memory button
FM mode selector
FM IF band selector (normal ↔ narrow)

• Rear panel




A MAIN CIRCUIT
FM FRONT END PACK
SNVFE407G29
FM RF AMP
FM MIXER
FM IFT
FM signal
FM ANT
FM OSC
BUFFER
AM ANT
AM signal
AM LOOP ANT
Q101 2SC2787L IF AMP
Q102 2SC2785F IF SELECTOR
Q103, 104 2SA1175FE IF SELECTOR
IC102 AN278
FM IF AMP
FM IF NORMAL
FM IF SUPER NARROW
AM OSC
AM ANT trimmer
AM ANT Coil
AM OSC Coil
FM DET coil
FM offset voltage (0mV)
IC101
AN7274NS
FM IF & DET/AM CONV
AM RF adj.
IC901
uPD1714G528
PLL CONTROLLER
FM mode output
Forcible monaural mode
Muting output
FM/AM "AUTO SCAN" mode
Key return signal
Segment/Key scan signal
87.50MHz→108.00MHz
522KHz→1611KHz
Q902,903 2SC2785F FM/AM LOOP FILTER
Q904 2SA1175FE FM/AM LOOP FILTER
LCD



■ SCHEMATIC DIAGRAM

Note 1:

- **S1～S10** : Preset tuning switch.
  [S1—CH1, S2—CH2, S3—CH3, S4—CH4
  S5—CH5, S6—CH6, S7—CH7, S8—CH8
  S9—CH9, S10—CH0]
- **S11, S12** : Tuning switch. (tuning)
  [S11—down (tuning to lower frequency.)
  S12—up (tuning to higher frequency.)]
- **S13** : Memory switch. (memory)
  (memory ↔ auto memory)
- **S14** : FM mode selector. (FM mode)
  (auto ↔ mono)
- **S15** : FM IF band selector. (IF band)
  (normal ↔ narrow)
- **S16** : Scan level selector. (scan level)
  (dB ↔ level)
- **S17** : FM signal-strength indication button. (signal)
- **S21, S22** : Band selector. (band selector)
  (S21—FM, S22—AM)
- **S701** : Power switch in "on" position. (power)
- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  All voltage values shown in circuitry are DC voltage in FM signal (no signal) reception mode and "normal" mode of the FM IF band.
  * Figures in ( ) stand for DC voltage in AM signal reception mode.
  * Figures in [ ] stand for muting mode.
  * Figures in ⌜ ⌟ stand for DC voltage in "narrow" mode.
- ——— Positive voltage lines. ⋯⋯ AF signal.
  ⇨ FM signal ▭▭▭▷ FM OSC
  ➡ AM signal ▬▬▬▶ AM OSC

Important safety notice.
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

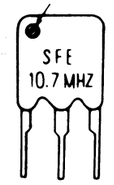
Part No.	Original Part No.	Supplyment Part No.
D901	MA150	MA162A

Note 2:

• Use of ceramic filters in pairs

The ceramic filters (CF101～CF102) for FM-IF circuit are available in two ranks.
For this machine, be sure to use the ceramics of the same rank in a pair. At repairing and replacement, pay close attention to the diode (D901) for use as different diode must be used depending on each rank of the ceramic filters.

Color marking

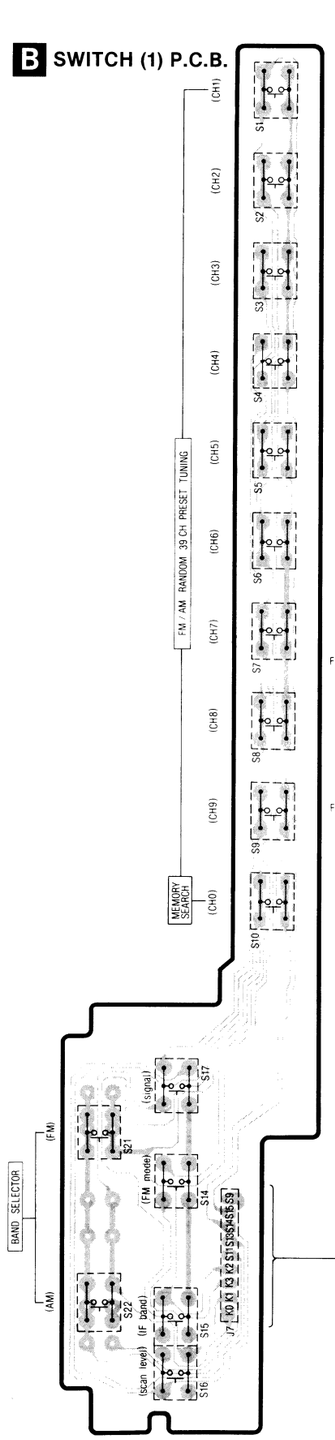


RANK (Color)	D901	CENTER FREQUENCY
Red	×	10.70MHz
Black	○	10.65MHz

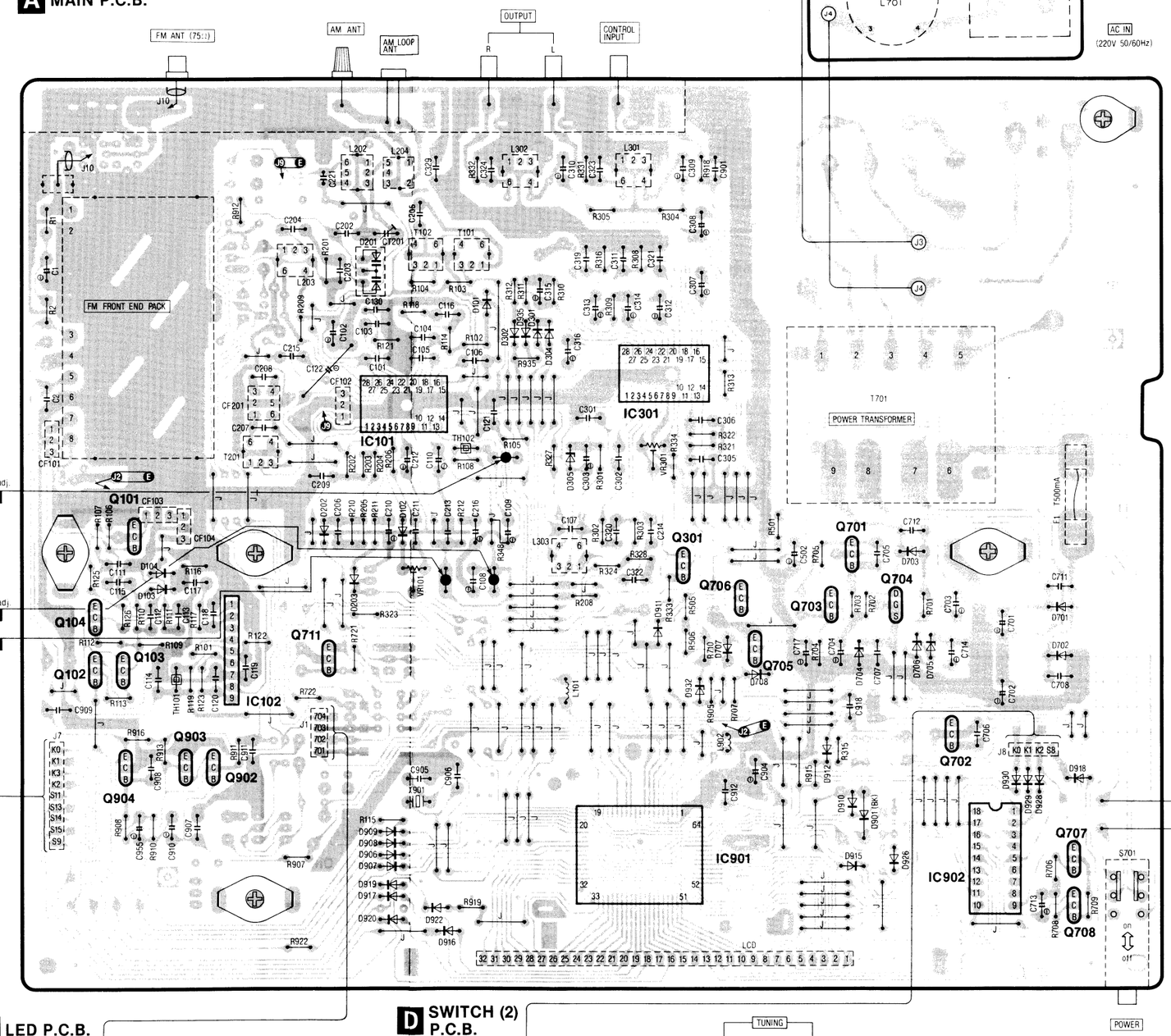
Note: ○ mark: Diode is used.
× mark: Diode is not used.

■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

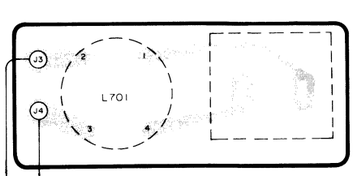
B SWITCH (1) P.C.B.



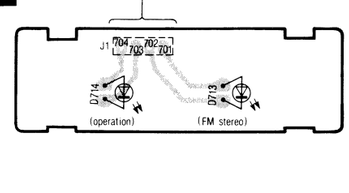
A MAIN P.C.B.



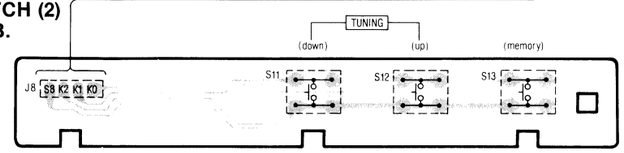
E AC INLET P.C.B.



C LED P.C.B.



D SWITCH (2) P.C.B.



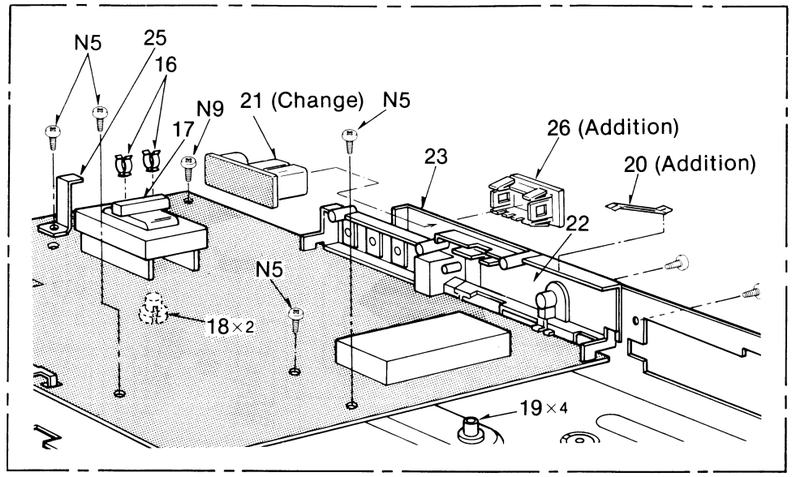
■ EXPLODE

■ REPLACE

Notes:
- Part number Please use
- Important s Components teristics imp When repla manufacture
- Bracketed area. Parts areas.

Ref. No.	Pa
INTEGRATED CIRCUIT	
IC101	AN722
IC102	AN278
IC301	AN747
IC901	UPD17
IC902	MN12
TRANSISTORS	
Q101	2SC27
Q102, 301, 703, 705, 706, 708, 711, 902, 903	2SC27
Q103, 104, 707, 904	2SA11
Q701, 702	2SC16
Q704	2SK30
DIODES	
D101～104, 202, 203, 301, 302, 304, 707, 708, 906～912, 915～920, 922, 926, 928～930, 935	MA165
D201	KV126
D305	MA400
D701, 702, 703 △	1SR35
D704	MA400
D705, 706	MA414
D713	LN846
D714	LN446
D901	MA162
D932	MA405
COILS	
L101	ELEPH
L202	SLA25
L203	SLO25
L204	SLQB5
L301, 302	SLM5(
L303	SLM1(
L701	SLQZ(
L902	RLQY:

■ EXPLODED VIEW (ADDITION AND DIFFERENCE)



■ REPLACEMENT PARTS LIST

Notes:
- Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
- Important safety notice. Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
- The parenthesized numbers in the column of description stand for the quantity per set.
- ◯-marked parts are used for silver type only. Ⓚ-marked parts are used for black type only.
- Part other than ◯- and Ⓚ-marked are used for both black and silver types.
- The unit of resistance is OHM (Ω). K=1000Ω, M=1000kΩ
- The unit of capacitance is MICROFARAD (μF). P=10⁻⁶μF.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	AN7274NS	IC
IC102	AN278	IC
IC301	AN7472S	IC
IC901	UPD1714G528	IC
IC902	MN1219	IC
TRANSISTORS		
Q101	2SC2787L	Transistor
Q102, 301, 703, 705, 706, 708, 711, 902, 903	2SC2785F	Transistor
Q103, 104, 707, 904	2SA1175FE	Transistor
Q701, 702	2SC1685−QNC	Transistor
Q704	2SK301−S	Transistor
DIODES		
D101∼104, 202, 203, 301, 302, 304, 707, 708, 906∼912, 915∼920, 922, 926, 928∼930, 935	MA165	Diode
D201	KV1260Z	Diode
D305	MA4082M	Diode
D701, 702, 703 ⚠	1SR35200	Rectifier
D704	MA4062−M	Diode
D705, 706	MA4140−M	Diode
D713	LN846RP−C	LED
D714	LN446YP−C	LED
D901	MA162A	Diode
D932	MA4091−M	Diode
COILS		
L101	ELEPK101KA	L.P.F.
L202	SLA2B3−P	AM Antenna
L203	SLO2B9R−P	AM OSC
L204	SLQB20G−1P	Choke
L301, 302	SLM5B2−1P	L.P.F.
L303	SLM1B1−P	L.P.F.
L701	SLQZ650MH49	Choke
L902	RLQY25S5−0	Choke

Ref. No.	Part No.	Description
TRANSFORMERS		
T101	SLI4B520−Z	FM IFT
T102	SLI4B521−Z	FM IFT
T201	SLI2B104−M	AM IFT
T701 ⚠	SLT5K227	Power Source
CERAMIC FILTERS		
CF101∼104	SVFE107MZ2−A	FM, 10.70MHz (Red)
	SVFE107MZ2−D	FM, 10.65MHz (Black)
CF201	SVFSFZ450F7L	AM, 450kHz
CRYSTAL		
X901	SVQ49U452−T	4.5MHz
VARIABLE RESISTORS		
VR101, 301	QVNB3A00B104	SSL Adj., Separation Adj., 100kΩ (B)
VARIABLE CAPACITOR		
CT201	SVCTZ03T110F	Trimmer (AM Antenna)
THERMISTERS		
TH101, 102	ERTD2ZHL332S	3.3kΩ
FM FRONT END		
	SNVFE407G29	FM Front Pack
LIQUID CRYSTAL DISPLAY		
LCD	SALHLC9196−2	
LAMP		
PL1	XAMS15S150	9.6V, 0.27A
FUSE		
F1 ⚠	XBA2C05TR0	250V, T500mA

Ref. No.	Part No.	Description
SWITCHES		
S1∼17, 21, 22	SSG13	Key Board
S701 ⚠	SSH1214	Power Source

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1 ◯	SGWTG50−SE	Front Panel Ass'y (1)
1 Ⓚ	SGWTG50−KE	Front Panel Ass'y (1)
1-1 ◯	SGU446−5	Tranceparent Plate (1)
1-1 Ⓚ	SGU446−4	Tranceparent Plate (1)
2 ◯	SBC809−1	Button, Tuning (1)
2 Ⓚ	SBC809	Button, Tuning (1)
3 ◯	SBC726−1A	Button, Preset Tuning (1)
3 Ⓚ	SBC726A	Button, Preset Tuning (1)
4 ◯	SBC810−3	Button (1)
4 Ⓚ	SBC810−2	Button (1)
5 ◯	SBC811−1A	Button, Band Selector (1)
5 Ⓚ	SBC811A	Button, Band Selector (1)
6 ◯	SBC666	Button, Power Source (1)
6 Ⓚ	SBC666−3	Button, Power Source (1)
7	SUW3011	Bracket (1)
8 ◯	SGX7733−1	Ornament (1)
8 Ⓚ	SGX7733	Ornament (1)
9 ◯	SKC1710S98	Cabinet (1)
9 Ⓚ	SKC1710K99	Cabinet (1)
10 ◯	SGXTG50L−SE	Front Sub Panel (1)
10 Ⓚ	SGXTG50L−KE	Front Sub Panel (1)

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
11	SUW3002	Blacket (1)
12	SHR9795	Holder, LCD (1)
13	SDU267	Filter (1)
14	SHR415	Nylon Pin (1)
15	SMP407	Lamp Case (1)
16	SJT347	Fuse Holder (2)
17	SHG1639	Rubber (1)
18	SHE181	Spacer, P.C.B. (2)
19	SHE185	Spacer, P.C.B. (4)
20	SUS803	Spring, Ground (1)
21 ⚠	SJS9231B	Socket, AC Inlet (1)
22	SJF8613−1N	Terminal Board (1)
23 [GB]	SGPTG50−SG	Rear Panel Ass'y (1)
23 [Ei]	SGPTG50−SJ	Rear Panel Ass'y **(MELUK)** (1)
(23-1	(SKL293	Foot (4)
24	SJT30443−V	Connector (4P) (J1, J4) (2)
24	SJT30943−V	Connector (9P) (J3) (2)
25	SUS772	Ground Plate (1)

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
26	SJS9231A	Socket Cover, AC Inlet (1)
SCREWS and WASHERS		
N1	XTB3+6FFZ	Tapping, ⊕3×6 (4)
N2	XTB3+12JFZ	Tapping, ⊕3×12 (5)
N3	XTB3+10G	Tapping, ⊕3×10 (1)
N4 ◯	SNE2095−4	Cabinet (4)
N4 Ⓚ	SNE2095−5	Cabinet (4)
N5	XTBS3+16F1	Tapping, ⊕3×16 (4)
N6	XTW3+8TFR	Tapping, ⊕3×8 (2)
N7	XTB3+8GFZ	Tapping, ⊕3×8 (3)
N8	XTBS3+8JFZ1	Tapping, ⊕3×8 (1)
N9	XTBS3+20F1	Tapping, ⊕3×20 (1)
ACCESSORIES		
A1 ⚠	SFDAC05E02	AC Cord (1)
A2	SJP2249	Cord (1)
A4	SSA270	FM Antenna Cord (1)
A5	SSA902−5	Loop Antenna (1)
A6	SMA231	Holder (1)

Ref. No.	Part No.	Description
ACCESSORIES		
A7	SMA233−1	Holder (1)
A8	XTN3+10AFZ	Screw (2)
A9 [EGB]	SQF12669	Instruction Book (1)
A9 [Ei]	SQF12673	Instruction Book **(MELUK)** (1)
PACKING PARTS		
P1 [EGB] ◯	SPG5548	Carton Box (1)
P1 [EGB] Ⓚ	SPG5549	Carton Box (1)
P1 [Ei]	SPG5552	Carton Box **(MELUK)** (1)
P2	SPS4550−5	Pad, Front Side (1)
P3	SPS4551−4	Pad, Rear Side (1)
P4	SPS4552	Pad, Upper (1)
P5	SPS4563	Pad, Corner (2)
P6 ◯	SPP697	Polyethylene Bag (1)
P6 Ⓚ	SPP725	Polyethylene Bag (1)
P7	XZB24X40C05	Polyethylene (Accessories) (1)
P8 [Ei] ◯	SGK1411	Label (Silver Type only) (2)

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon	S2 : 1/4W S1 : 1/2W	J : ±5%

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Capacitor Type	Voltage: ECEA Type	Voltage: Other	Tolerance
ECEA : Electrolytic	0J : 6.3V	1H : 50V DC	C : ±0.25pF
ECCD : Ceramic	1A : 10V	1 : 125V DC	J : ±5%
ECKD : Ceramic	1C : 16V		K : ±10%
ECQM : Polyester	1E : 25V		Z : +80%, −20%
ECQP : Polypropylene	1H : 50V		
	25 : 25V		

● RESISTORS

Ref. No.	Part No.	Value
R1	ERDS2TJ104	100K
R2	ERDS2TJ273	27K
R101	ERDS2TJ222	2.2K
R102	ERDS2TJ104	100K
R103	ERDS2TJ822	8.2K
R104	ERDS2TJ182	1.8K
R105	ERDS2TJ155	1.5M
R106	ERDS2TJ102	1K
R107	ERDS2TJ331	330
R108	ERDS2TJ333	33K
R109	ERDS2TJ103	10K
R110, 111	ERDS2TJ682	6.8K
R112	ERDS2TJ104	100K
R113	ERDS2TJ473	47K
R114	ERDS2TJ101	100
R115	ERDS2TJ473	47K
R116	ERDS2TJ332	3.3K
R117	ERDS2TJ102	1K
R118	ERDS2TJ221	220
R119	ERDS2TJ272	2.7K
R121	ERDS2TJ392	3.9K
R122, 123	ERDS2TJ331	330
R125	ERDS2TJ102	1K
R126	ERDS2TJ472	4.7K
R201	ERDS2TJ104	100K
R202	ERDS2TJ222	2.2K
R203	ERDS2TJ473	47K
R204	ERDS2TJ563	5.6K
R205	ERDS2TJ104	100K
R206	ERDS2TJ101	100
R208	ERDS2TJ273	27K
R209	ERDS2TJ102	1K
R210	ERDS2TJ224	220K
R211	ERDS2TJ222	2.2K
R212	ERDS2TJ473	47K
R301	ERDS2TJ471	470
R302	ERDS2TJ682	6.8K
R303	ERDS2TJ123	12K
R304, 305	ERDS2TJ564	560K
R308	EROS2TKF1502	15K

Ref. No.	Part No.	Value
R309	ERDS2TJ102	1K
R310, 311	ERDS2TJ274	270K
R312	ERDS2TJ274	270K
R313	ERDS2TJ103	10K
R315	ERDS2TJ393	39K
R316	ERDS2TJ183	18K
R321, 322	ERDS2TJ224	220K
R323	ERDS2TJ561	560
R324	ERDS2TJ564	560K
R327	ERDS2TJ822	8.2K
R328	ERDS2TJ272	2.7K
R331, 332	ERDS2TJ153	15K
R333	ERDS2TJ473	47K
R334	ERDS2TJ184	180K
R348	ERDS2TJ392	3.9K
R501	ERDS2TJ103	10K
R505, 506	ERDS2TJ155	1.5M
R701	ERD25FJ221	220
R702, 703	ERDS2TJ222	2.2K
R704, 705	ERDS2TJ822	8.2K
R706	ERDS2TJ102	1K
R707	ERDS2TJ473	47K
R708, 709	ERDS2TJ104	100K
R710	ERDS2TJ102	1K
R721	ERDS2TJ473	47K
R722	ERDS2TJ561	560
R905	ERDS2TJ472	4.7K
R907	ERDS2TJ102	1K
R908	ERDS2TJ123	12K
R910	ERDS2TJ561	560
R911	ERDS2TJ102	1K
R912	ERDS2TJ822	8.2K
R913	ERDS2TJ123	12K
R915	ERDS2TJ103	10K
R916	ERDS2TJ682	6.8K
R918	ERDS2TJ102	1K
R919	ERDS2TJ222	2.2K
R922	ERDS2TJ222	2.2K
R935	ERDS2TJ682	6.8K

● CAPACITORS

Ref. No.	Part No.	Value
C1	ECEA1EU3R3	3.3
C2	ECKD1H103ZF	0.01
C101	ECQM1H223JZ	0.022
C102	ECEA0JU101	100
C103	ECQM1H102JZ	0.001
C104, 105	ECKD1H103ZF	0.01
C106	ECCD1H070CC	7P
C107	ECCD1H101K	100P
C108	ECEA0JU101	100
C109	ECEA1HUR22	0.22
C110	ECEA1EU4R7	4.7
C111, 112	ECKD1H103ZF	0.01
C113, 114	ECKD1H103ZF	0.01
C115	ECKD1H103ZF	0.01
C116	ECQM1H102JZ	0.001
C117, 118	ECKD1H103ZF	0.01
C119, 120	ECKD1H103ZF	0.01
C121	ECFTD223KXL	0.022
C122	ECEA0JU471	470
C130	RCBS1H180JCY	18P
C202	ECQM1H473JZ	0.047
C203	ECCD1H180KC	18P
C204	ECQP1H471JZ	470P
C205, 206	ECKD1H103ZF	0.01
C207	RCBS1H8R2KCY	8.2P
C208	RCBS1H680JLY	68P
C209	ECKD1H103ZF	0.01
C210	ECEA0JU330	33
C211	ECKD1H103ZF	0.01
C212	ECEA1HUR47	0.47
C213	ECKD1H223ZF	0.022
C214	ECFTD183KXL	0.018
C215	ECKD1H103ZF	0.01
C216	ECEA0JU330	33
C221	ECQM1H223JZ	0.022
C301	ECQM1H332JZ	0.0033
C302	ECKD1H103ZF	0.01
C303	ECEA1AU101	100
C305, 306	ECQM1H153JZ	0.015
C307, 308	ECEA1EU3R3	3.3

Ref. No.	Part No.	Val
C309, 310	ECEA1CU100	
C311	ECQP2A391GZT	390
C312	ECEA1CU100	
C313	ECEA1HUR47	0.4
C314, 315	ECEA1HUR22	0.2
C316	ECEA1CU100	
C319	ECKD1H103ZF	0.0
C320	ECQM1H104JZ	0
C321	ECFTD223KXL	0.02
C322	ECQM1H102JZ	0.00
C223, 324	ECFTD272KXL	0.002
C329	ECKD1H103ZF	0.0
C502	ECEA1HUR22	0.2
C701	ECEA1CU102	100
C702	ECEA1CU222	220
C703	ECEA1VU470	4
C704	ECEA1EU101	10
C705, 706	ECKD1H103ZF	0.0
C707, 708	ECKD1H103ZF	0.
C711, 712	ECKD1H102ZF	0.0
C713	ECEA1CU100	
C714	ECEA1VU100	
C717	ECEA1CU100	
C901	ECKD1H103ZF	
C904	ECEA0JU471	
C905	ECCD1H070CC	
C906	ECCD1H180KC	
C907	ECKD1H103ZF	
C908	ECQM1H223JZ	
C909	ECKD1H103ZF	
C910	ECEA25M4R7R	4.7
C911, 912	ECKD1H103ZF	0.0
C918	ECKD1H103ZF	0.0
C955	ECEA1HUR47	0.4

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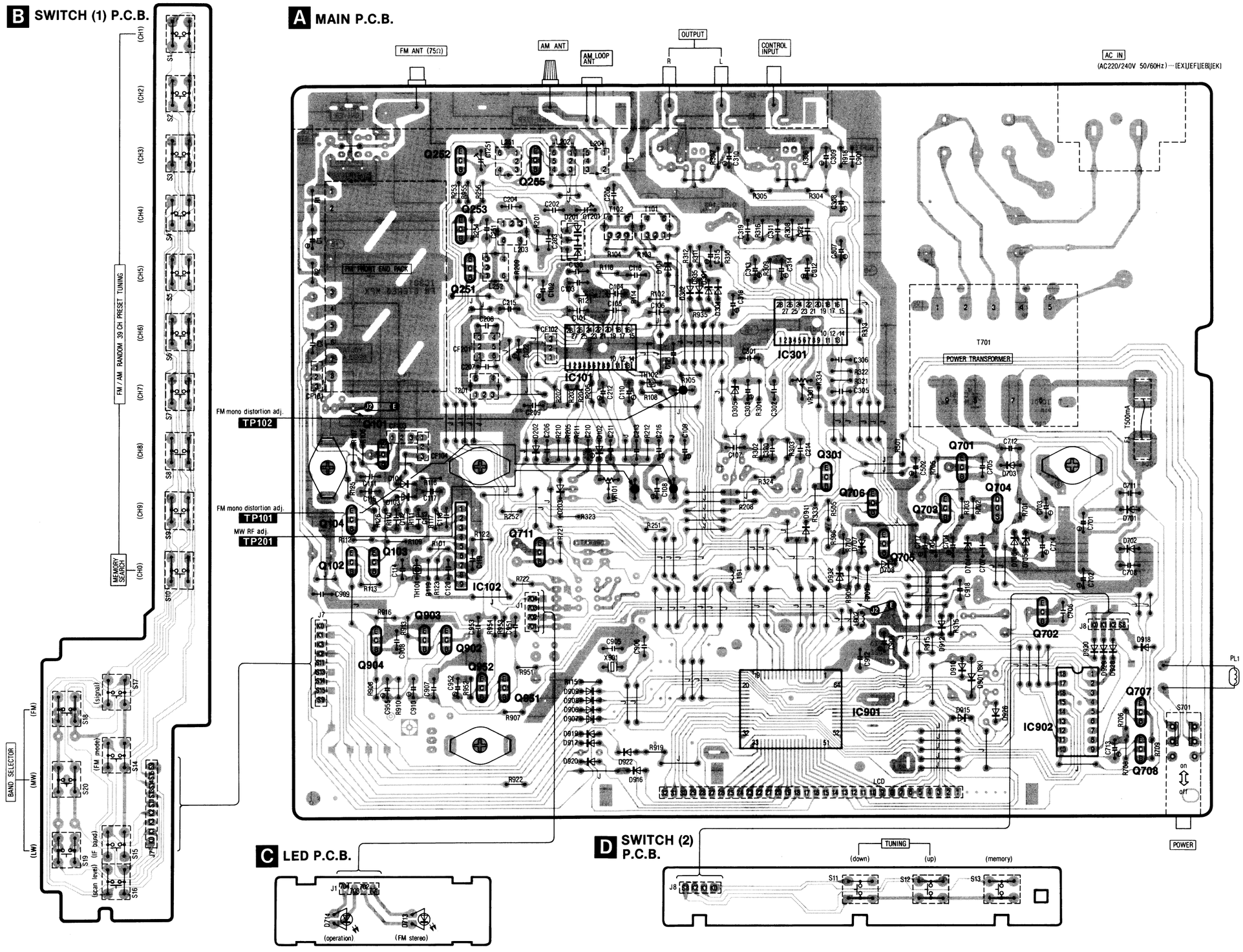
■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM (ST-G50L)

B SWITCH (1) P.C.B.

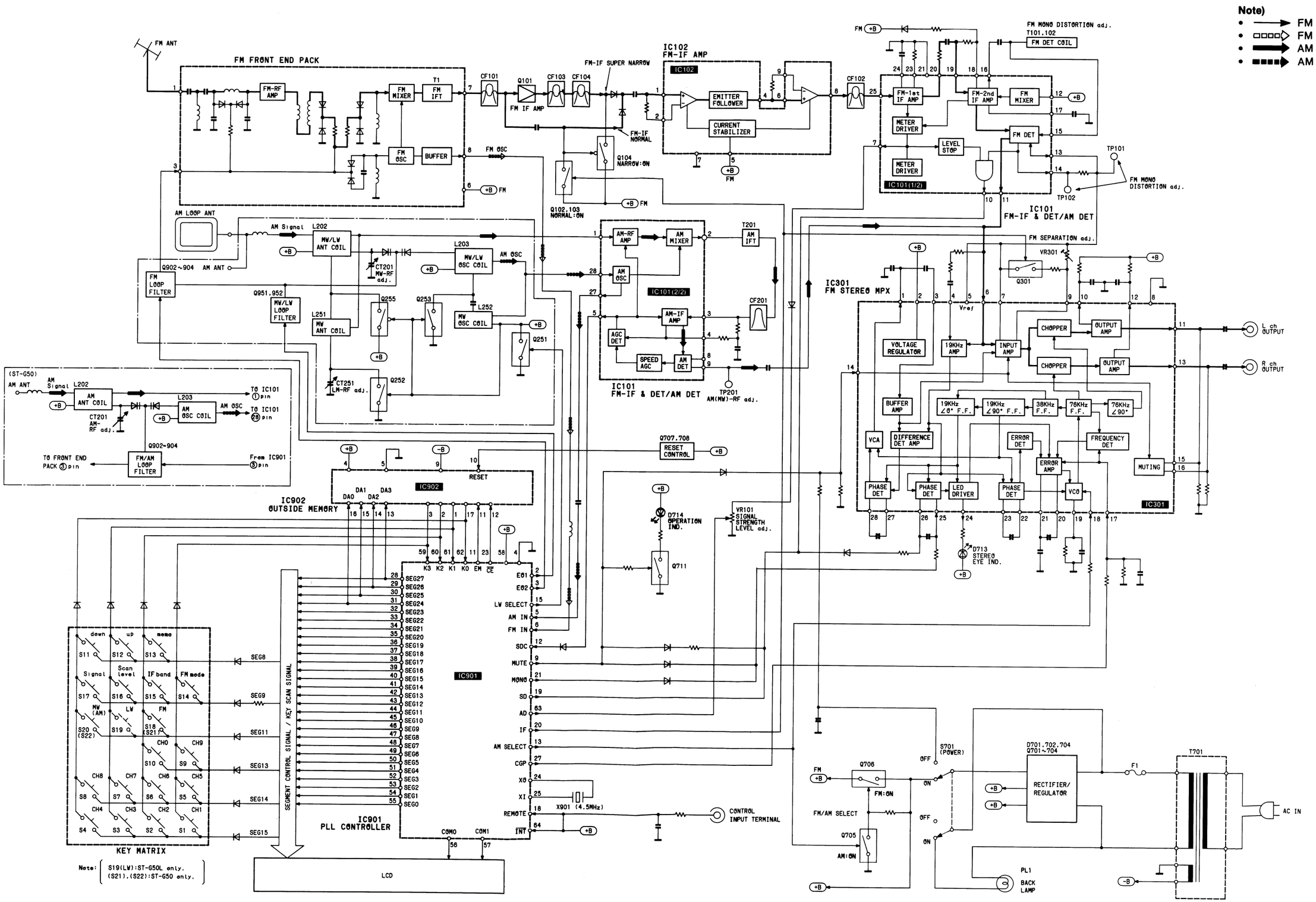
A MAIN P.C.B.



C LED P.C.B.

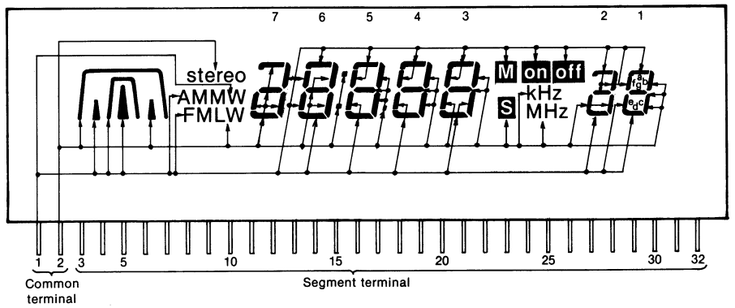
D SWITCH (2) P.C.B.

■ BLOCK DIAGRAM

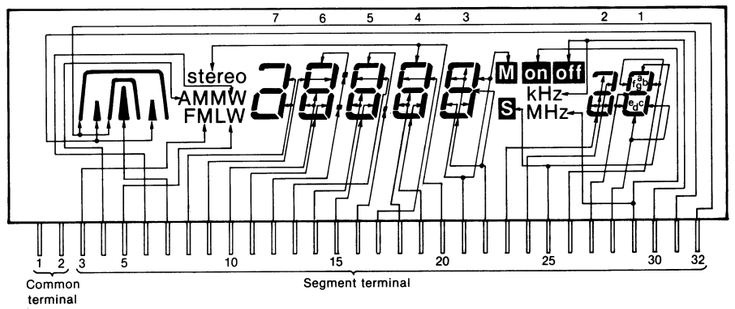


■ DESCRIPTION OF LCD PANEL

• COMMON



• SEGMENT

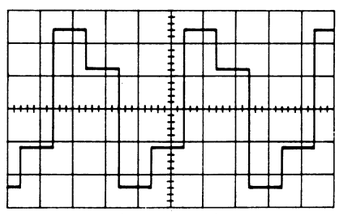


No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
COM1	COM1	—	FM	AM	—	MW	▌	7b	6f	6e	6d	6a	5f	5e	5d	5a
COM2	—	COM2	—	—	LW	—	7adeg	7c	6b	6g	6c	▐	5b	5g	5c	■

No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
COM1	4f	4e	4d	4a	M	3acdf	2adg	2b	1a	1f	1e	1d	on	off	▌ left	⎍
COM2	4b	4g	4c	stereo	3be	3g	2e	2c	S	1b	1g	1c	MHz	kHz	right ▌	⎍

< Segment ON >

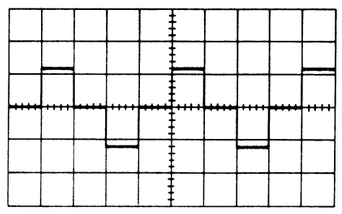
Pin ① or ② of LCD and each segment terminal.



2V AC/DIV, 5m sec/cm

< Segment OFF >

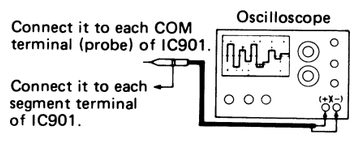
Pin ① or ② of LCD and each segment terminal.



2V AC/DIV, 5m sec/cm

• Each segment waveform measuring method

Note: Potential difference from COM terminal waveform is measured for each segment output waveform. So, do not connect the earth to other equipment on the oscilloscope side.
If the earth is connected, IC901 will break down.



■ RESISTORS AND CAPACITORS

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice. Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The unit of resistance is OHM (Ω). K=1000Ω, M=1000kΩ
5. The unit of capacitance is MICROFARAD (μF). P=10⁻⁶μF.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Peculiarity use	Value	Special use

Resistor Type		Wattage		Tolerance	
ERD	: Carbon	25	: 1/4W	F	: ±1%
ERC	: Solid	S2	: 1/4W	J	: ±5%
ERO	: Metal Film	S1	: 1/2W	K	: ±1%
		12	: 1/2W		

Capacitor Type		Voltage				Tolerance	
		ECEA Type		Other			
ECEA	: Electrolytic	0J	: 6.3V	1H	: 50V DC	C	: ±0.25pF
ECCD	: Ceramic	1A	: 10V	1	: 125V DC	G	: ±2%
ECKD	: Ceramic	1C	: 16V	KC	: 400V AC	J	: ±5%
ECQM	: Polyester	1E	: 25V			K	: ±10%
ECQP	: Polypropylene	1H	: 50V			Z	: +80%, −20%
		1V	: 35V				
		25	: 25V				

• RESISTORS (ST-G50L)

Ref. No.		Part No.	Value
R1		ERDS2TJ104	100K
R2		ERDS2TJ273	27K
R101		ERDS2TJ222	2.2K
R102		ERDS2TJ104	100K
R103		ERDS2TJ822	8.2K
R104		ERDS2TJ182	1.8K
R105		ERDS2TJ155	1.5M
R106		ERDS2TJ102	1K
R107		ERDS2TJ331	330
R108		ERDS2TJ333	33K
R109		ERDS2TJ103	10K
R110, 111		ERDS2TJ682	6.8K
R112		ERDS2TJ104	100K
R113		ERDS2TJ473	47K
R114		ERDS2TJ101	100
R115		ERDS2TJ473	47K
R116		ERDS2TJ332	3.3K
R117		ERDS2TJ102	1K
R118		ERDS2TJ221	220
R119		ERDS2TJ272	2.7K
R121		ERDS2TJ392	3.9K
R122, 123		ERDS2TJ331	330
R125		ERDS2TJ102	1K
R126		ERDS2TJ472	4.7K
R201		ERDS2TJ104	100K
R202		ERDS2TJ222	2.2K
R203		ERDS2TJ473	47K
R204		ERDS2TJ563	5.6K
R205		ERDS2TJ104	100K
R206		ERDS2TJ101	100
R208		ERDS2TJ273	27K
R209		ERDS2TJ102	1K
R210		ERDS2TJ224	220K
R211		ERDS2TJ222	2.2K
R212		ERDS2TJ473	47K
R251		ERDS2TJ473	47K
R252, 253		ERDS2TJ182	1.8K
R254		ERDS2TJ223	22K
R256		ERDS2TJ103	10K
R301		ERDS2TJ471	470
R302		ERDS2TJ563	56K
R303		ERDS2TJ393	39K
R304, 305		ERDS2TJ564	560K
R306, 307		ERDS2TJ104	100K
R308		EROS2TKF1502	15K
R309		ERDS2TJ102	1K
R310, 311		ERDS2TJ274	270K
R312		ERDS2TJ274	270K
R313		ERDS2TJ103	10K
R315		ERDS2TJ393	39K
R316		ERDS2TJ183	18K
R321, 322		ERDS2TJ224	220K
R323		ERDS2TJ561	560
R324		ERDS2TJ564	560K
R333		ERDS2TJ473	47K
R334		ERDS2TJ274	270K
R501		ERDS2TJ103	10K
R505, 506		ERDS2TJ155	1.5M
R701	Ⓢ	ERD25FJ221	220
R702, 703		ERDS2TJ222	2.2K

Ref. No.		Part No.	Value
R704, 705		ERDS2TJ822	8.2K
R706		ERDS2TJ102	1K
R707		ERDS2TJ473	47K
R708, 709		ERDS2TJ104	100K
R710		ERDS2TJ102	1K
R721		ERDS2TJ473	47K
R722		ERDS2TJ561	560
R905		ERDS2TJ472	4.7K
R907		ERDS2TJ102	1K
R908		ERDS2TJ123	12K
R910		ERDS2TJ561	560
R913		ERDS2TJ123	12K
R915		ERDS2TJ103	10K
R916		ERDS2TJ682	6.8K
R918		ERDS2TJ102	1K
R919		ERDS2TJ222	2.2K
R922		ERDS2TJ222	2.2K
R935		ERDS2TJ682	6.8K
R951		ERDS2TJ102	1K
R952		ERDS2TJ332	3.3K
R953		ERDS2TJ123	12K
R954		ERDS2TJ102	1K
R955		ERDS2TJ822	8.2K

Ref. No.		Part No.	Value
C213	Ⓢ	ECKD1H223ZF	0.022
C214		ECFTD183KXL	0.018
C215	Ⓢ	ECKD1H103ZF	0.01
C216		ECEA0JU330	33
C251		ECQP1391JZ	390P
C301	Ⓢ	ECQM1H332JZ	0.0033
C302	Ⓢ	ECKD1H103ZF	0.01
C303		ECEA1AU101	100
C305, 306	Ⓢ	ECQM1H153JZ	0.015
C307, 308		ECEA1EU3R3	3.3
C309, 310		ECEA1CU100	10
C311		ECQP2A391GZT	390P
C312		ECEA1CU100	10
C313		ECEA1HUR47	0.47
C314, 315		ECEA1HUR22	0.22
C316		ECEA1CU100	10
C319	Ⓢ	ECKD1H103ZF	0.01
C320, 321		ECFTD223KXL	0.022
C502		ECEA1HUR22	0.22
C701		ECEA1CU102	1000
C702		ECEA1CU222	2200
C703		ECEA1VU470	47

Ref. No.		Part No.	Value
C704		ECEA1EU101	100
C705, 706	Ⓢ	ECKD1H103ZF	0.01
C707, 708	Ⓢ	ECKD1H103ZF	0.01
C711, 712	Ⓢ	ECKD1H102ZF	0.001
C713		ECEA1CU100	10
C714		ECEA1VU100	10
C717		ECEA1CU100	10
C901	Ⓢ	ECKD1H103ZF	0.01
C904		ECEA0JU471	470
C905	Ⓢ	ECCD1H070CC	7P
C906	Ⓢ	ECCD1H180KC	18P
C907	Ⓢ	ECKD1H103ZF	0.01
C908	Ⓢ	ECQM1H223ZF	0.022
C909	Ⓢ	ECKD1H103ZF	0.01
C910	Ⓢ	ECEA25M4R7R	4.7
C912	Ⓢ	ECKD1H103ZF	0.01
C918	Ⓢ	ECKD1H103ZF	0.01
C951	Ⓢ	ECKD1H223ZF	0.022
C952		ECEA1HU010	1
C953	Ⓢ	ECQM1H223JZ	0.022
C955		ECEA1HUR47	0.47

• CAPACITORS (ST-G50L)

Ref. No.		Part No.	Value
C1		ECEA1EU3R3	3.3
C2	Ⓢ	ECKD1H103ZF	0.01
C101	Ⓢ	ECQM1H223JZ	0.022
C102		ECEA0JU101	100
C103	Ⓢ	ECQM1H102JZ	0.001
C104, 105	Ⓢ	ECKD1H103ZF	0.01
C106	Ⓢ	ECCD1H070CC	7P
C107	Ⓢ	ECCD1H101K	100P
C108		ECEA0JU101	100
C109		ECEA1HUR22	0.22
C110		ECEA1EU4R7	4.7
C111, 112	Ⓢ	ECKD1H103ZF	0.01
C113, 114	Ⓢ	ECKD1H103ZF	0.01
C115	Ⓢ	ECKD1H103ZF	0.01
C116	Ⓢ	ECQM1H102JZ	0.001
C117, 118	Ⓢ	ECKD1H103ZF	0.01
C119, 120	Ⓢ	ECKD1H103ZF	0.01
C121	Ⓢ	ECFTD223KXL	0.022
C122	Ⓢ	ECEA0JU471	470
C130	Ⓢ	RCBS1H180JCY	18P
C202	Ⓢ	ECQM1H473JZ	0.047
C203	Ⓢ	ECCD1H150KC	15P
C204		ECQP1H471JZ	470P
C205, 206	Ⓢ	ECKD1H103ZF	0.01
C207		RCBS1H8R2KCY	8.2P
C208		RCBS1H680JLY	68P
C209	Ⓢ	ECKD1H103ZF	0.01
C210		ECEA0JU330	33
C211	Ⓢ	ECKD1H103ZF	0.01
C212		ECEA1HUR47	0.47

• Change of Parts List (ST-G50 from ST-G50L)

Ref. No.	Change of Part No. ST-G50L [EK]	Change of Part No. ST-G50 [EX, EH, XA, XL, XS, PA, PE]	Description
RESISTORS			
R251	ERDS2TJ473	———	(Deletion)
R252, 253	ERDS2TJ182	———	(Deletion)
R254	ERDS2TJ223	———	(Deletion)
R256	ERDS2TJ103	———	(Deletion)
R331, 332	———	ERDS2TJ104	(Addition) 100K
R911	———	ERDS2TJ102	(Addition) 1K
R912	———	ERDS2TJ822	(Addition) 8.2K
R951	ERDS2TJ102	———	(Deletion)
R952	ERDS2TJ332	———	(Deletion)
R953	ERDS2TJ123	———	(Deletion)
R954	ERDS2TJ102	———	(Deletion)
R955	ERDS2TJ822	———	(Deletion)
CAPACITORS			
C203	ECCD1H150KC	ECCD1H180KC	18pF
C251	ECQP1391JZ	———	(Deletion)
C305, 306	ECQM1H153JZ	ECQM1H223JZ	[PA, PE] only 0.022μF
C911	———	ECKD1H103ZF	(Addition) 0.01μF
C951	ECKD1H223ZF	———	(Deletion)
C952	ECEA1HU010	———	(Deletion)
C953	ECQM1H223JZ	———	(Deletion)

■ SCHEMATIC DIAGRAM

Note 1:

- **S1～S10** : Preset tuning switch.
  [S1—CH1, S2—CH2, S3—CH3, S4—CH4
  S5—CH5, S6—CH6, S7—CH7, S8—CH8
  S9—CH9, S10—CH0]
- **S11, S12** : Tuning switch. (tuning)
  [S11—down (tuning to lower frequency.)
  S12—up (tuning to higher frequency.)]
- **S13** : Memory switch. (memory)
  (memory ↔ auto memory)
- **S14** : FM mode selector. (FM mode)
  (auto ↔ mono)
- **S15** : FM IF band selector. (IF band)
  (normal ↔ narrow)
- **S16** : Scan level selector. (scan level)
  (dB ↔ level)
- **S17** : FM signal-strength indication button. (signal)
- **S18～S20** (ST-G50L) : Band selector. (band selector)
  (S18—FM, S19—LW, S20—MW)
- **S21, S22** (ST-G50) : Band selector. (band selector)
  (S21—FM, S22—AM)
- **S701** : Power switch in "on" position. (power)
- **S702** : Voltage selector switch in "240V" position.
  ([XA], [XS], [PA] and [PE] areas)

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  All voltage values shown in circuitry are DC voltage in FM signal (no signal) reception mode and "normal" mode of the FM IF band.
  * Figures in ( ) stand for DC voltage in AM (MW) signal reception mode.
  * Figures in (( )) stand for DC voltage in LW signal reception mode.
  * Figures in ▭ stand for muting mode.
  * Figures in ⌈ ⌋ stand for DC voltage in "narrow" mode.
- ——— Positive voltage lines. ▒▒▒ AF signal.
  ⇨ FM signal ▫▫▫▫⇨ FM OSC
  ➡ AM signal ▬▬▬➡ AM OSC

Important safety notice.
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

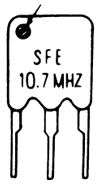
Part No.	Original Part No.	Supplyment Part No.
D901	MA150	MA162A

Note 2:

• Use of ceramic filters in pairs

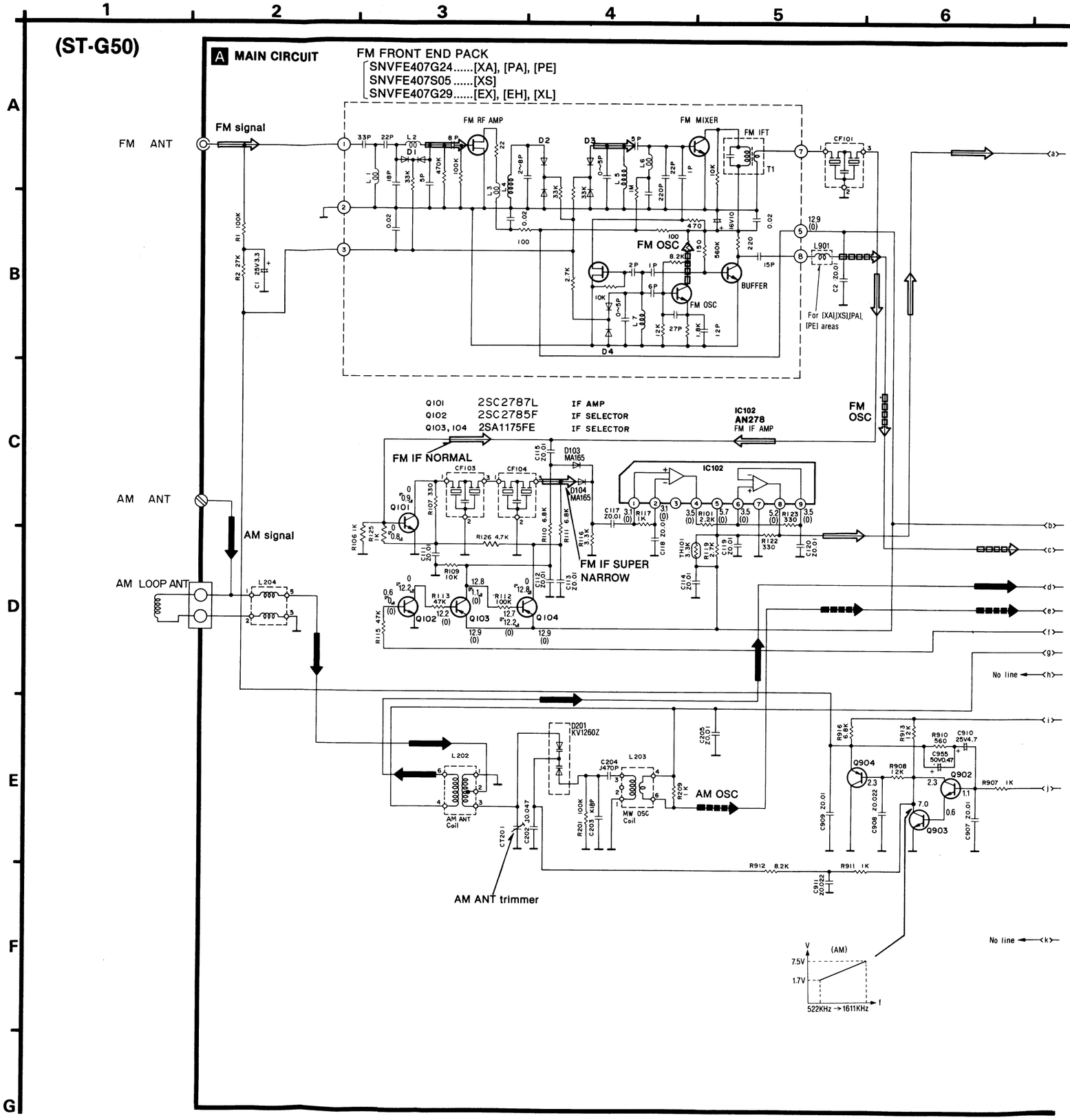
The ceramic filters (CF101～CF102) for FM-IF circuit are available in two ranks.
For this machine, be sure to use the ceramics of the same rank in a pair.
At repairing and replacement, pay close attention to the diode (D901) for use as different diode must be used depending on each rank of the ceramic filters.

Color marking



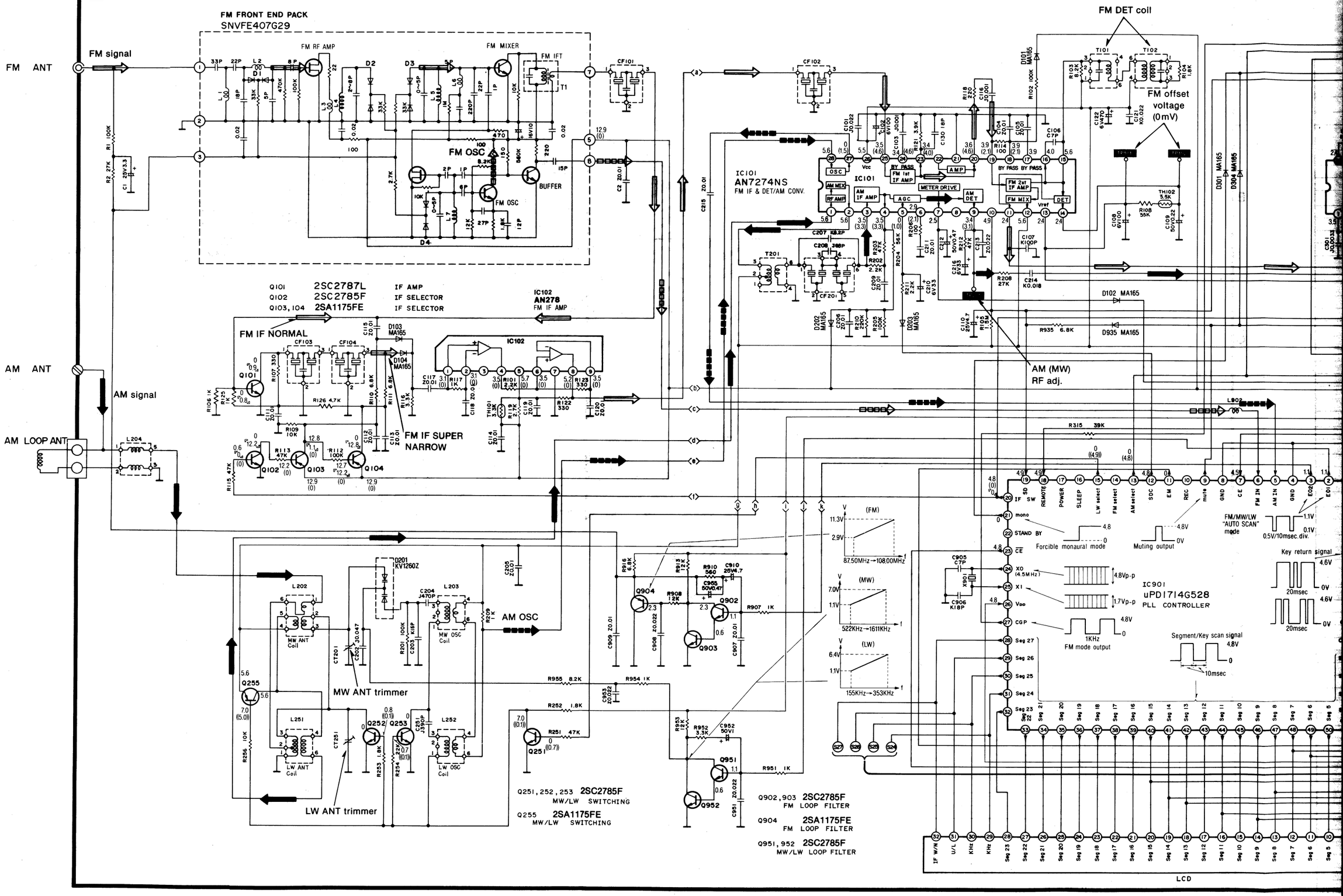
RANK (Color)	D901	CENTER FREQUENCY
Red	×	10.70MHz
Black	○	10.65MHz

Note: ○ mark: Diode is used.
× mark: Diode is not used.

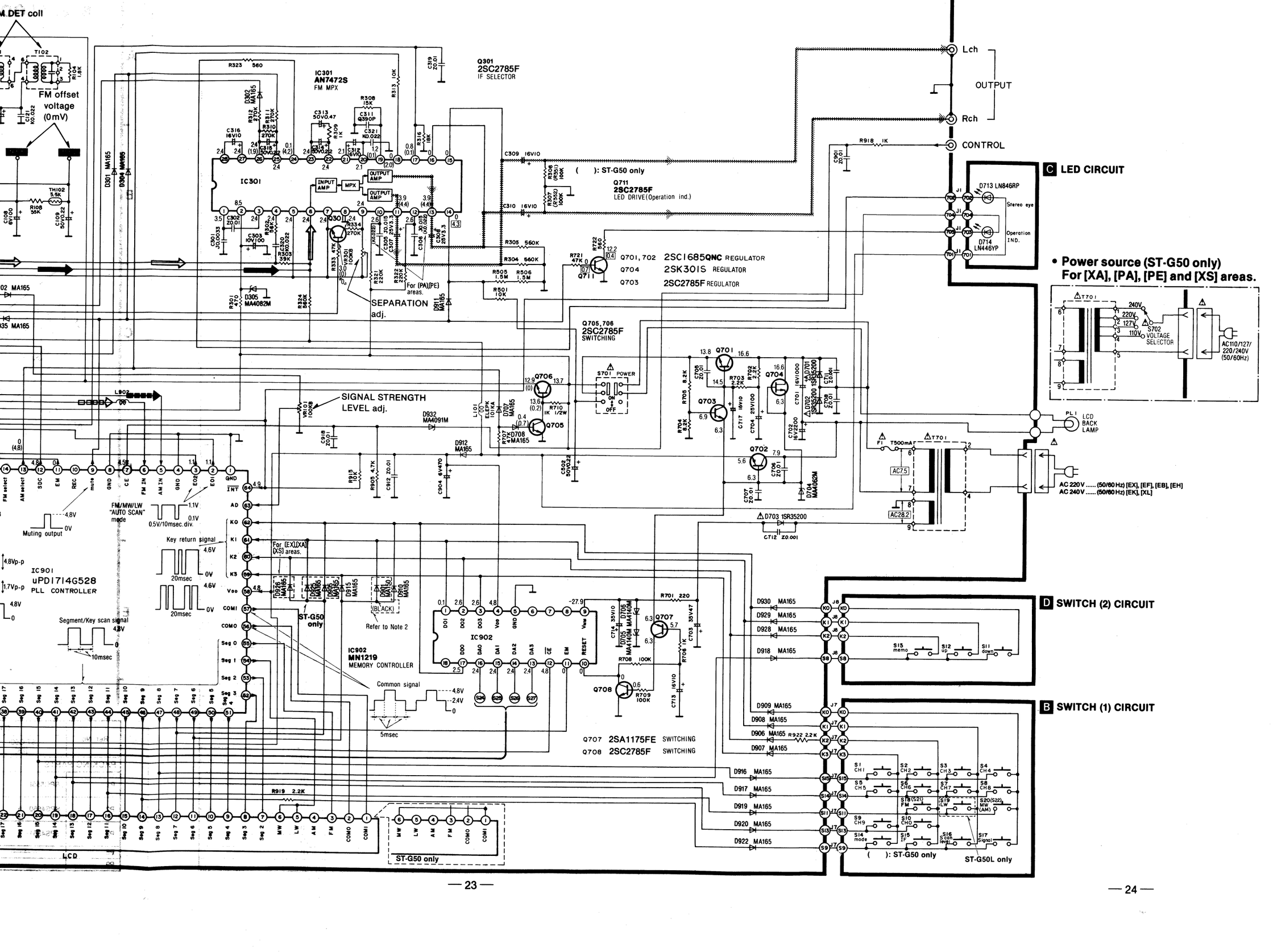


(ST-G50L)

A MAIN CIRCUIT



9 10 11 12 13 14 15 16 17 18



■ REPLACEMENT PARTS LIST

Notes: 1. Part numbers are indicated on most mechanical parts. Please use this part number for parts order.
2. Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.
3. Bracketed indications in Ref. No. columns specify the area. Parts without these indications can be used for all areas.
4. Ⓚ marked parts are used for black only, while ○ marked parts are for silver type only.
Part other than Ⓚ are ○ marked are use for both black and silver type.
5. The parenthesized numbers in the column of description stand for the quantity per set.

(ST-G50L)

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC101	AN7274NS	IC
IC102	AN278	IC
IC301	AN7472S	IC
IC901	UPD1714G528	IC
IC902	MN1219	IC
TRANSISTORS		
Q101	2SC2787L	Transistor
Q102, 251～253, 301, 703, 705, 706, 708, 711, 902, 903, 951, 952	2SC2785F	Transistor
Q103, 104, 255, 707, 904	2SA1175FE	Transistor
Q701, 702	2SC1685－QNC	Transistor
Q704	2SK301－S	Transistor
DIODES		
D101～104, 202, 203, 301, 302, 304, 707, 708, 906～912, 915～920, 922, 926, 928～930, 935	MA165	Diode
D201	KV1260Z	Diode
D305	MA4082M	Diode
D701, 702, 703 ⚠	1SR35200	Rectifier
D704	MA4062－M	Diode
D705, 706	MA4140－M	Diode
D713	LN846RP－C	LED
D714	LN446YP－C	LED
D901	MA162A	Diode
D932	MA4091－M	Diode
COILS		
L101	ELEPK101KA	L.P.F.
L202	SLA2B3－P	MW Antenna
L203	SLO2B9R－P	MW OSC
L204	SLQB20G－1P	Choke
L251	SLA1B7R－P	LW Antenna
L252	SLO1B5－P	LW OSC
L902	RLQY25S5－0	Choke
TRANSFORMERS		
T101	SLI4B520－Z	FM IFT
T102	SLI4B521－Z	FM IFT
T201	SLI2B104－M	AM IFT
T701 [EK] ⚠	SLT5K229	Power Source
T701 [other] ⚠	SLT5K227	Power Source
CERAMIC FILTERS		
CF101, 103, 104 SVFE107MZ2－A		FM, 10.70MHz (Red)
CF101, 103, 104 SVFE107MZ2－D		FM, 10.65MHz (Brack)
CF102 SVFE107MX2－A		FM, 10.70MHz (Red)
CF102 SVFE107MX2－D		FM, 10.65MHz (Brack)
CF201	SVFSFZ450F7L	AM, 450kHz
CRYSTAL		
X901	SVQ49U452－T	4.5MHz
VARIABLE RESISTORS		
VR101, 301	QVNB3A00B104	SSL Adj., Separation Adj., 100kΩ (B)
VARIABLE CAPACITORS		
CT201	SVCTZ03T110F	Trimmer
CT251	SVCTZ03R200F	Trimmer

Ref. No.	Part No.	Description
THERMISTERS		
TH101, 102	ERTD2ZHL332S	3.3kΩ
FM FRONT END		
	SNVFE407G29	FM Front Pack
LIQUID CRYSTAL DISPLAY		
LCD	SALHLC9196－2	
LAMP		
PL1	XAMS15S150	9.6V, 0.27A
FUSES		
F1 [EK] ⚠	XBA2C05TB0	250V, T500mA
F1 [other] ⚠	XBA2C05TR0	250V, T500mA
SWITCHES		
S1～20	SSG13	Key Board
S701 ⚠	SSH1214	Power Source

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1 ○	SGWTG50L－SE	Front Panel (1)
1 Ⓚ	SGWTG50L－KE	Front Panel (1)
1-1 ○	SGU446－5	Tranceparent Plate (1)
1-1 Ⓚ	SGU446－4	Tranceparent Plate (1)
2 ○	SBC809－1	Button, Tuning (1)
2 Ⓚ	SBC809	Button, Tuning (1)
3 ○	SBC726－1A	Button, Preset Tuning (1)
3 Ⓚ	SBC726A	Button, Preset Tuning (1)
4 ○	SBC810－3	Button (1)
4 Ⓚ	SBC810－2	Button (1)
5 ○	SBC812－1A	Button, Band Selector (1)
5 Ⓚ	SBC812A	Button, Band Selector (1)
6 ○	SBC666	Button, Power Source (1)
6 Ⓚ	SBC666－3	Button, Power Source (1)
7	SUW3011	Bracket (1)
8 ○	SGX7733－1	Ornament (1)
8 Ⓚ	SGX7733	Ornament (1)
9 ○	SKC1710S98	Cabinet (1)
9 Ⓚ	SKC1710K99	Cabinet (1)
10 ○	SGXTG50L－SE	Front Sub Panel (1)
10 Ⓚ	SGXTG50L－KE	Front Sub Panel (1)
11	SUW3002	Blacket (1)
12	SHR9795	Holder, LCD (1)
13	SDU267	Filter (1)
14	SHR415	Nylon Pin (1)
15	SMP407	Lamp Case (1)
16	SJT347	Fuse Holder (2)
17	SHG1639	Rubber (1)
18	SHE181	Spacer, P.C.B. (1)
19	SHE185	Spacer, P.C.B. (3)
20	SUS803	Spring, Ground (1)

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
21 ⚠	SJS9236	AC Inlet (1)
22	SJF8615N	Terminal Board (1)
23 [EX]	SGPTG50L－SE	Rear Panel Ass'y (1)
23 [EK]	SGPTG50L－SK	Rear Panel Ass'y (1)
23 [EF, EB]	SGPTG50L－SF	Rear Panel Ass'y (1)
〔23-1	〔SKL293	Foot (4)
24	SJT30443－V	Connector (4P) (J1, J4) (2)
24	SJT30943－V	Connector (9P) (J3) (2)
SCREWS and WASHERS		
N1	XTB3＋6FFZ	Tapping, ⊕3×6 (4)
N2	XTB3＋12JFZ	Tapping, ⊕3×12 (5)
N3	XTB3＋10G	Tapping, ⊕3×10 (1)
N4 ○	SNE2095－4	Cabinet (4)
N4 Ⓚ	SNE2095－5	Cabinet (4)
N5	XTBS3＋16F1	Tapping, ⊕3×16 (3)
N6	XTW3＋8TFR	Tapping, ⊕3×8 (2)
N7	XTB3＋8GFZ	Tapping, ⊕3×8 (3)
N8	XTBS3＋8JFZ1	Tapping, ⊕3×8 (1)
ACCESSORIES		
A1 [EK] ⚠	SFDAC05G02	AC Cord (1)
A1 ⚠ [other]	SFDAC05E02	AC Cord (1)
A2	SJP2249	Cord (1)
A3 ⚠ [EK] only	SJP9009	Plug (1)
A4	SSA270	FM Antenna Cord (1)
A5	SSA902－5	Loop Antenna (1)
A6	SMA231	Holder (1)
A7	SMA233－1	Holder (1)
A8	XTN3＋10AFZ	Screw (2)
A9 [EK]	SQF12678	Instruction Book (1)
A9 [other]	SQF12668	Instruction Book (1)
PACKING PARTS		
P1 [EK] ○	SPG5556	Carton Box (1)
P1 [EK] Ⓚ	SPG5554	Carton Box (1)
P1 [EF]	SPG5555	Carton Box (1)
P1 [other]	SPG5553	Carton Box (1)
P2	SPS4550－5	Pad, Front Side (1)
P3	SPS4551－4	Pad, Rear Side (1)
P4	SPS4552	Pad, Upper (1)
P5	SPS4563	Pad, Corner (2)
P6 ○	SPP697	Polyethylene Bag (1)
P6 Ⓚ	SPP725	Polyethylene Bag (1)
P7	XZB24X40C05	Polyethylene (Accessories) (1)
P8 ○ Except [EK]	SGK1411	Label (2)

● Change of Parts List (ST-G50 from ST-G50L)

Ref. No.	Change of Part No. ST-G50L [EK] ➡ ST-G50 [EX, EH, XA, XL, XS, PA, PE]		Part Name & Description	Pcs/Set	Remarks
TRANSISTORS					
Q251～253	2SC2785F	———	———	—	(Deletion)
Q255	2SA1175FE	———	———	—	(Deletion)
Q951, 952	2SC2785F	———	———	—	(Deletion)
DIODES					
D905	———	MA165	[XA] only Diode	(1)	(Addition)
D925	———	MA165	[XS] only Diode	(1)	(Addition)
COILS					
L202	SLA2B3－P	SLA2B1－1M	AM Antenna	(1)	
L203	SLO2B9R－P	SLO2B7－M	AM OSC	(1)	
L251	SLA1B7R－P	———	———	—	(Deletion)
L252	SLO1B5－P	———	———	—	(Deletion)
L901	———	RLQY25S5－0	[XA, XS, PA, PE] only Choke		(Addition)
TRANSFORMERS					
T701	SLT5K229	SLT5K229	[XL] Power Transformer	(1)	⚠
		SLT5K228	[XA, XS, PA, PE] Power Transformer	(1)	⚠
		SLT5K227	[other] Power Transformer	(1)	⚠
CERAMIC FILTERS					
CF101	SVFE107MZ2－A	SVFE107ML－A	[XS] only 10.7MHz (Red)	(1)	
	SVFE107MZ2－D	SVFE107ML－E	[XS] only 10.75MHz (White)	(1)	
CF102	SVFE107MX2－A	SVFE107MX2－A	[XS] only 10.7MHz (Red)	(1)	
	SVFE107MX2－D	SVFE107MX2－E	[XS] only 10.75MHz (White)	(1)	
CF103, 104	SVFE107MZ2－A	SVFE107MZ2－A	[XS] only 10.7MHz (Red)	(1)	
	SVFE107MZ2－D	SVFE107MZ2－E	[XS] only 10.75MHz (White)	(1)	
VARIABLE CAPACITOR					
CT251	SVCTZ03R200F	———	———	—	(Deletion)
FM FRONT END					
	SNVFE407G29	SNVFE407S05	[XS] FM RF Pack	(1)	
		SNVFE407G24	[XA, PA, PE] FM RF Pack	(1)	
		SNVFE407G29	[other] FM RF Pack	(1)	
FUSE					
F1	XBA2C05TB0	XBA2C05TR0	250V, T500mA	(1)	⚠
SWITCHES					
S18, 19, 20	SSG13	———	———	—	(Deletion)
S21, 22	———	SSG13	Band Selector	(1)	(Addition)
S702	———	SSR187－1	[XA, XS, PA, PE] only Voltage Selector	(1)	(Addition) ⚠
CABINET and CHASSIS PARTS					
1 ○	SGWTG50L－SE	SGWTG50－SE	Front Panel Ass'y	(1)	
1 Ⓚ	SGWTG50L－KE	SGWTG50－KE	Front Panel Ass'y	(1)	
5 ○	SBC812－1A	SBC811－1A	Button	(1)	
5 Ⓚ	SBC812A	SBC811A	Button	(1)	
10 ○	SGXTG50L－SE	SGXTG50－SP	[PA, PE] only Front Sub Panel (Silver Type)	(1)	
		SGXTG50L－SE	[other] Front Sub Panel (Silver Type)	(1)	
22	SJF8615N	SJF8615N	[EX, EH] Terminal Board	(1)	
		SJF8714N	[other] Terminal Board	(1)	
23	SGPTG50L－SK	SGPTG50－SE	[EX] Rear Panel	(1)	
		SGPTG50－SH	[EH] Rear Panel	(1)	
		SGPTG50－SL	[XL] Rear Panel	(1)	
		SGPTG50－SX	[other] Rear Panel	(1)	
25	———	SUS772	[PA, PE] only Spring	(1)	
ACCESSORIES					
A1	SFDAC05G02	SJA163	[XL] AC Cord	(1)	⚠
		SJA168－1	[PA, PE] AC Cord	(1)	⚠
		SFDAC05E02	[other] AC Cord	(1)	⚠
A3	SJP9009	SJP5213－1	[XA] Plug	(1)	⚠
		SJP9215	[PA, PE] Plug	(1)	⚠
		———	[other] ———	—	(Deletion)
A4	SSA270	SSA270	[EX, EH] FM Antenna Cord	(1)	
		SSA269	[other] FM Antenna Cord	(1)	
A9	SQF12678	SQF12670	[PA, PE] Instruction Book	(1)	
		SQF12668	[other] Instruction Book	(1)	

1

■ EXPLO

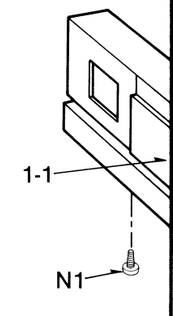
A

B

C

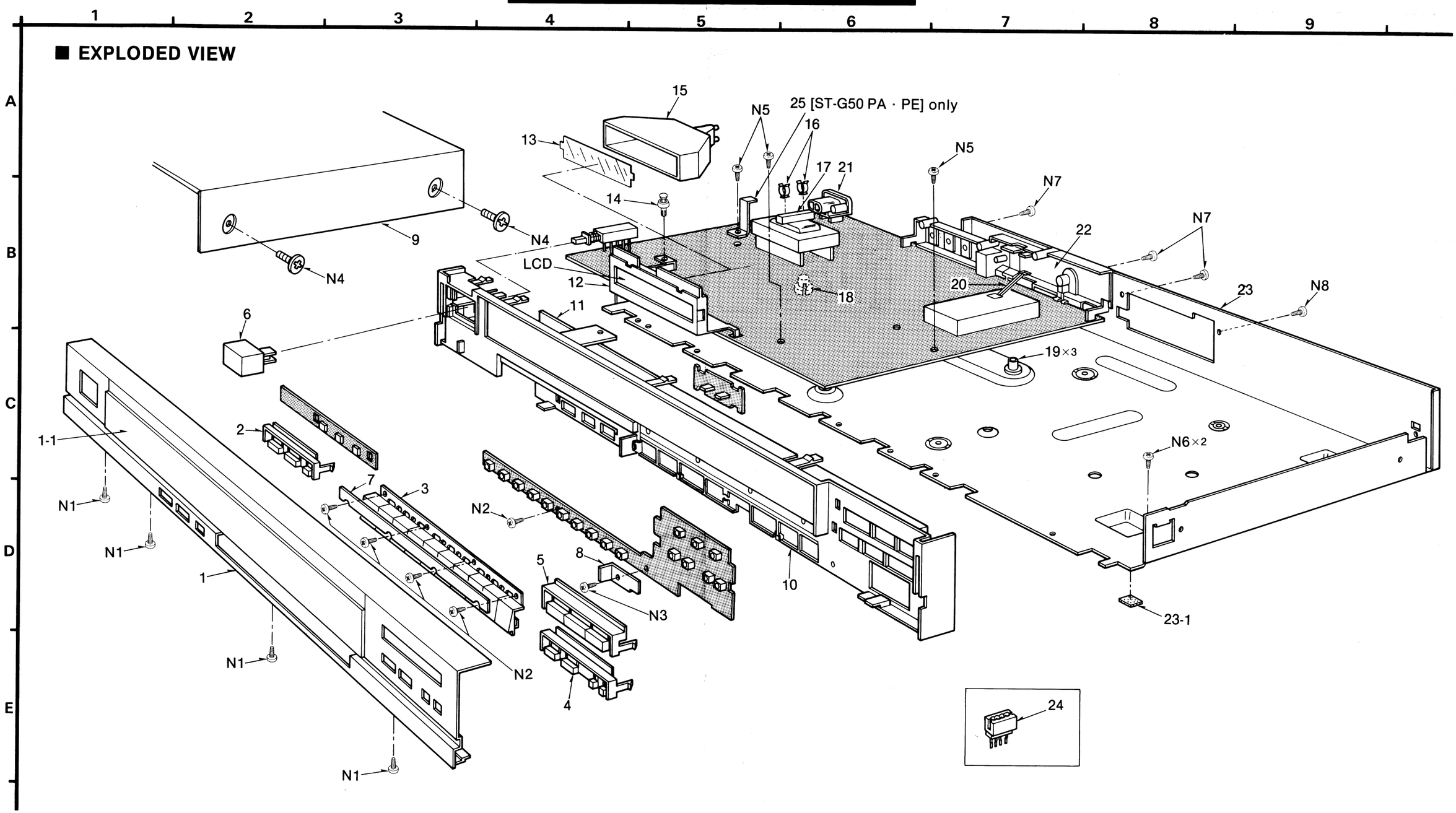
D

E



Ref. No.	ST-G5 [EK]
PACKING PARTS	
P1	SPG5556
P2	SPS4550－5
P3	SPS4551－4
P8	———
P9	———

■ EXPLODED VIEW



Ref. No.	Change of Part No. ST-G50L [EK] ➡ ST-G50 [EX, EH, XA, XL, XS, PA, PE]		Part Name & Description	Pcs/Set	Remarks
PACKING PARTS					
P1	SPG5556	SPG5550	[XL] Carton Box	(1)	
		SPG5548	[other] Carton Box	(1)	
P2	SPS4550−5	SPS4550−1	[XL] Pad	(1)	
		SPS4550−5	[other] Pad	(1)	
P3	SPS4551−4	SPS4551−1	[XL] Pad	(1)	
		SPS4551−4	[other] Pad	(1)	
P8	———	SGK1411	Label (Silver Type only)	(2)	
P9	———	SPS4672	[XL] only Pad Upper	(1)	

Printed in Japan
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ORDER NO. HAD8602347C8-A

QUARTZ Synthesizer
AM/FM Stereo Tuner
QUARTZ Synthesizer
LW/MW/FM Stereo Tuner

ST-G50
ST-G50L

DEUTSCH

- This booklet contains the specifications and adjusting procedures for ST-G50/G50L, written in German, French and Spanish.
- File this manual together with the ST-G50/G50L service manual (Order No. HAD8602347C8).

- Das vorliegende Büchlein enthält die technische Daten und Justierverfahren für den ST-G50/G50L in deutscher, französischer und spanischer Sprache.
- Bewahren Sie das Büchlein zusammen mit der Bedienungsanleitung für des ST-G50/G50L auf (Bestell-Nr. HAD8602347C8).

- Cette brochure contient les spécifications et les procédures de mises au point pour le ST-G50/G50L, écrites en allemand, en français et en espagnol.
- Classer ce manuel en même temps qu'avec le manuel de service du ST-G50/G50L (N° d'order: HAD8602347C8).

- Este librito contiene la especificaciones y procedimientos de ajuste para ST-G50/G50L, escritos en alemán, francés y español.
- Guardar este manual juntamente con el manual de servico de ST-G50/G50L (Pedido N° HAD8602347C8).

DEUTSCH

■ TECHNISCHE DATEN (DIN 45 500)

(Die technischen Daten können infolge von Verbesserungen ohne Ankündigung geändert werden.)

■ UKW-TUNERTEIL

Wellenbereich	87,50 ~ 108,00 MHz
	87,525 ~ 108,00 MHz (+25 kHz-Schritte)
Eingangsempfindlichkeit	1,5 µV (nutzbar nach IHF)
S/R 30 dB	1,3 µV (75 Ω)
S/R 26 dB	1,2 µV (75 Ω)
S/R 20 dB	0,9 µV (75 Ω)
Stereoumschaltschwelle bei 46 dB nach IHF	28 µV/75 Ω
Gesamtklirrfaktor	
Mono (normal)	0,02%
Stereo (normal)	0,03%
Geräuschabstand	
Mono	72 dB (80 dB nach IHF)
Stereo	66 dB (73 dB nach IHF)
Frequenzgang	4 Hz ~ 18 kHz (+0,5 dB ~ −1,5 dB)
Trennschärfe bei Störsender	
normal ±400 kHz	50 dB
super narrow ±200 kHz	25 dB
Einfangverhältnis	1,0 dB
Spiegelfrequenz-Dämpfung bei 98 MHz	100 dB
ZF-Dämpfung bei 98 MHz	100 dB
Ansprechdämpfung auf Nebenfrequenzen bei 98 MHz	110 dB
MW-Unterdrückung	55 dB
Übersprechdämpfung	
1 kHz	60 dB
10 kHz	45 dB
Trägerrest	
19 kHz	−55 dB (−60 dB nach IHF)
38 kHz	−40 dB (−45 dB nach IHF)
Kanalabweichung (250 Hz ~ 6300 Hz)	±1,0 dB
Begrenzereinsatz	0,85 µV
Bandbreite	
ZF-Verstärker	180 kHz
UKW-Demodulator	1000 kHz
Antennenanschluß	75 Ω (unsymmetrisch)

■ MW-TUNERTEIL (ST-G50)

Wellenbereiche	
(für Europa, Südafrika und Australien)	
	522 kHz~ 1611 kHz (9-kHz-Schritte)
	530 kHz~ 1610 kHz (10-kHz-Schritte)
(für Saudi-Arabien und die übrigen Länder)	
	531 kHz ~ 1620 kHz (9-kHz-Schritte)
	530 kHz ~ 1610 kHz (10-kHz-Schritte)
Eingangsempfindlichkeit (S/R 20 dB)	20 µV, 300 µV/m
Trennschärfe bei 999 kHz (±9 kHz)	50 dB
Spiegelfrequenz-Dämpfung bei 999 kHz	40 dB
ZF-Dämpfung bei 999 kHz	60 dB

■ MW-TUNERTEIL (ST-G50L)

Wellenbereiche	
MW	522 kHz~ 1611 kHz (9-kHz-Schritte)
	530 kHz~ 1610 kHz (10-kHz-Schritte)
LW	155 kHz~ 353 kHz (9-kHz-Schritte)
	153 kHz~ 351 kHz (−2 kHz shift)
Eingangsempfindlichkeit (S/R 20 dB)	
MW	20 µV, 300 µV/m
LW	50 µV
Trennschärfe (±9 kHz)	
MW (bei 999 kHz)	50 dB
LW (bei 254 kHz)	50 dB
Spiegelfrequenz-Dämpfung	
MW (bei 999 kHz)	40 dB
LW (bei 254 kHz)	40 dB
ZF-Dämpfung	
MW (bei 999 kHz)	60 dB
LW (bei 254 kHz)	35 dB

■ ALLGEMEINE DATEN

Ausgangsspannung	0,3 V (0,6 V IHF)
Leistungsaufnahme	9W
Netzspannung	
Für Kontinentaleuropa	Wechselstrom 50 Hz/60 Hz, 220V
Für andere Länder	Wechselstrom 50 Hz/60 Hz, 110V/127V/220V/240V
Abmessungen (B×H×T)	430 × 64 × 241 mm
Gewicht	2,2 kg

Bemerkung:
Der Gesamtklirrfaktor wurde mit einem digitalen Rauschspektrometer (Anlage H.P. 3045) gemessen.

■ MESSUNGEN UND JUSTIERUNGEN

AM/FM (ST-G50)
LW/MW/FM (ST-G50L)

Einstellungen der Bedienelemente und zu verwendende Geräte.

- MW/UKW-Meßsender (MW/UKW-MS)
- Stereo-Modulator
- Verzerrungs-Analystator
- Oszilloskop
- Elektronische Wechselstrom- und Gleichstrom-Voltmeter (EVM)
- Frequenzzähler
- Drosselspule (100μH)
- Wiederstand (100kΩ)
- Keramischer Kondensator (200pF)

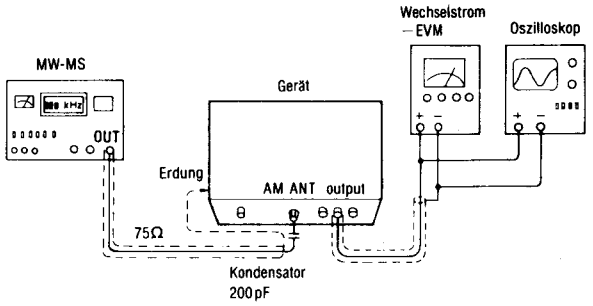
Anmerkung: Für **T201 (AM (MW) ZFT)**, **L203 (MW-OSZ,-Spule)** und **L251 (LW-Antennenspule)**, werdeven justiert Ersatzteil geliefert.
Dien Kern dieses Teils daher nicht drehen.

AM (MW)-HF-JUSTIERUNG

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "**AM (MW)**" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf **612kHz** einstellen.
4. **L202** auf maximale Ausgangsleistung abgleichen.
5. Die Radiofrequenzanzeige und den Meßsender auf **1503kHz** einstellen.
6. **CT201** auf maximale Ausgangsleistung abgleichen.
7. Die Schritte 3.~6. wiederholen.

Anmerkung:
Der Antenneneingang-Signalpegel muß so niedrig wie möglich und frei von automatischer Verstärkungsregelung (AGC) sein.

ZUSTAND DES MW-MESSENDERS
Modulation.....30%
Modulationsfrequenz.....400Hz

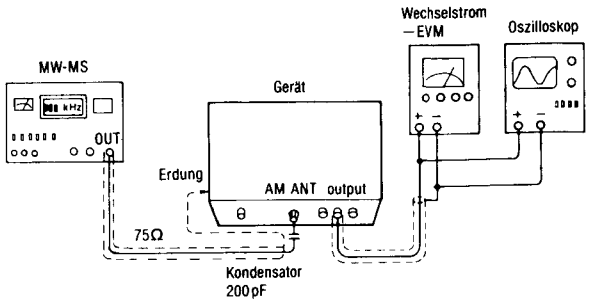


LW-HF-JUSTIERUNG (Nur ST-G50L)

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "**LW**" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf **155kHz** einstellen.
4. **L252** auf maximale Ausgangsleistung abgleichen.
5. Die Radiofrequenzanzeige und den Meßsender auf **353kHz** einstellen.
6. **CT251** auf maximale Ausgangsleistung abgleichen.
7. Die Schritte 3.~6. wiederholen.

Anmerkung:
Der Antenneneingang-Signalpegel muß so niedrig wie möglich und frei von automatischer Verstärkungsregelung (AGC) sein.

ZUSTAND DES MW-MESSENDERS
Modulation.....30%
Modulationsfrequenz.....400Hz



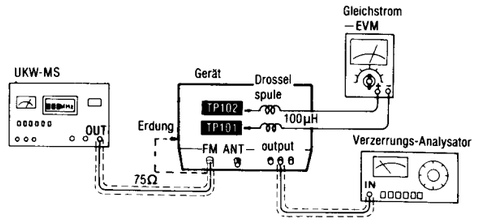
UKW-MONO-VERZERRUNGS-JUSTIERUNG

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "**FM (UKW)**" und "**normal**" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf **100,10 MHz** einstellen.
4. Den Kern von **T101** so justieren, daß die im Signalzustand gemessene Spannung **0 mV** im 300 mV-Bereich beträgt.
5. **T102** so justieren, daß der Verzerrungsfaktor des linken Kanals minimal wird.
6. Schritte 4 und 5 einige Male wiederholen.
7. Überprüfen, daß die Verzerrungsfaktor des linken und rechten Kanals fast gleich sind.

Anmerkung:

Für die Justierung ist ein Schraubendreher aus Kunststoff zu verwenden.

ZUSTAND DES UKW-MESSENDERS
Modulation..... 100%
Modulationsfrequenz..... 1 kHz
Ausgangspegel ..... 66 dB



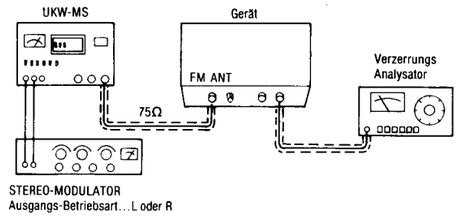
UKW-STEREO-VERZERRUNGS-JUSTIERUNG

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "**FM (UKW)**" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf **100.10 MHz** einstellen.
4. **T1** so justieren, daß der Verzerrungsfaktor des linken Kanals minimal wird.
5. Überprüfen, daß die Verzerrungsfaktor des linken und rechten Kanals fast gleich sind.

Anmerkung:

Für die Justierung ist ein Schraubendreher aus Kunststoff zu verwenden.

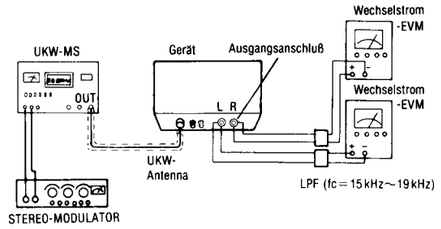
ZUSTAND DES UKW-MESSENDERS
Modulation..... "L" order "R" Betriebsart 45%, Pilotsignal 10%.
Modulationsfrequenz..... 1 kHz, Pilot (19 kHz)
Ausgangspegel ..... 66 dB



TRENNUNGS-JUSTIERUNG

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "**FM**" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf 100,10 MHz einstellen.
4. **VR301** so justieren, daß der R-Ausgang minimal ist, wenn der Stereomodulator im L-Betriebszustand (Linker Kanal moduliert) ist.

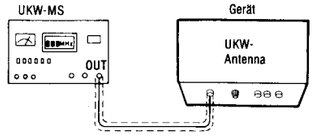
ZUSTAND DES UKW-MESSENDERS
Modulation..... "L" order "R" Betriebsart 45%, Pilotsignal 10%.
Modulationsfrequenz..... 1 kHz, Pilot (19 kHz)
Ausgangspegel ..... 66 dB



SIGNALSTÄRKEPEGEL-JUSTIERUNG

1. Der Testaufbau ist in der Abbildung gezeigt.
2. Das Gerät auf "FM" und "normal" einstellen.
3. Die Radiofrequenzanzeige und den Meßsender auf 100,10 MHz einstellen.
4. Die Flüssigkristallanzeige-Betriebsart von "**Frequenz**" auf "**dB**" umschalten, durch Drücken der UKW-Signaltaste.
5. **VR101** so justieren, daß **45 dB** angezeigt wird.
6. Überprüfen, daß der Signalstärkepegel **22~38 dB** beträgt, wenn die Eingangsleistung **30 dB** ist.

ZUSTAND DES UKW-MESSENDERS
Modulation..... 30%.
Modulationsfrequenz..... 1 kHz
Ausgangspegel ..... 66 dB



FRANÇAIS

■ CARACTERISTIQUES (Sujet à changement sans préavis)

(DIN 45 500)

■ SECTION SYNTONISATEUR FM

Gamme de fréquence	87,50~108,00 MHz
	87,525~108,00 MHz (par palier +25 kHz)
Sensibilité	1,5 µV (IHF utilisable)
S/B 30 dB	1,3 µV (75Ω)
S/B 26 dB	1,2 µV (75Ω)
S/B 20 dB	0,9 µV (75Ω)
Sensibilité stéréo au seuil de 46 dB, IHF	28 µV/75Ω
Distorsion harmonique totale	
MONO (normal)	0,02%
STEREO (normal)	0,03%
Signal/Bruit	
MONO	72 dB (80 dB, IHF)
STEREO	66 dB (73 dB, IHF)
Réponse de fréquence	4 Hz~18 kHz, +0,5 dB~−1,5 dB
Sélectivité alternée par canal	
normal ±400 kHz	50 dB
super narrow ±200 kHz	25 dB
Taux de capture	1,0 dB
Rejection d'image à 98 MHz	100 dB
Rejection FI à 98 MHz	100 dB
Rejection de réponse parasite à 98 MHz	110 dB
Suppression AM	55 dB
Séparation stéréophonique	
1 kHz	60 dB
10 kHz	45 dB
Fuite de porteuse	
19 kHz	−55 dB (−60 dB, IHF)
38 kHz	−40 dB (−45 dB, IHF)
Equilibrage de canaux (250 Hz~6,300 Hz)	±1,0 dB
Point de limite	0,85 µV
Largeur de bande	
Amplificateur FI	180 kHz
Démodulateur FM	1000 kHz
Bornes d'antenne	75Ω (asymétrique)

■ SECTION SYNTONISATEUR AM (ST-G50)

Gamme de fréquence
(Pour l'Europe, l'Afrique et l'Australie)
522 kHz~1611 kHz (9 kHz par palier)
530 kHz~1610 kHz (10 kHz par palier)

(Pour l'Arabie Saoudite et les autres pays)
531 kHz~1620 kHz (9 kHz par palier)
530 kHz~1610 kHz (10 kHz par palier)

Sensibilité (S/B 20 dB)	20 µV, 300 µV/m
Sélectivité à 999 kHz(±9 kHz)	50 dB
Réjection d'image à 999 kHz	40 dB
Réjection FI à 999 kHz	60 dB

■ SECTION SYNTONISATEUR AM (ST-G50L)

Gamme de fréquence	
PO (MW)	522 kHz~1611 kHz (9 kHz par palier)
	530 kHz~1610 kHz (10 kHz par palier)
GO (LW)	155 kHz~353 kHz (9 kHz par palier)
	153 kHz~351 kHz (−2 kHz shift)
Sensibilité (S/B 20 dB)	
PO (MW)	20 µV, 300 µV/m
GO (LW)	50 µV
Sélectivité (±9 kHz)	
PO (MW) (à 999 kHz)	50 dB
GO (LW) (à 254 kHz)	50 dB
Réjection d'image	
PO (MW) (à 999 kHz)	40 dB
GO (LW) (à 254 kHz)	40 dB
Réjection FI	
PO (MW) (à 999 kHz)	60 dB
GO (LW) (à 254 kHz)	35 dB

■ DIVERS

Tension de sortie	0,3V (0,6V IHF)
Consommation	9W
Alimentation	
Pour l'Europe	CA 50 Hz/60 Hz, 220V
Autres	CA 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (L×H×Pr)	430 × 64 × 241 mm
Poids	2,2 kg

Remarque:
On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système H.P. 3045).

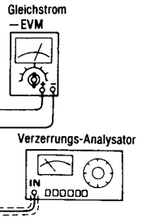
■ MESURAGES ET REGLAGES

A.M./M.F. (ST-G50)
LW/M.W./M.F. (ST-G50L)

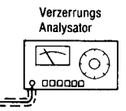
Positionnements des commandes et équipement utilisé

- Générateur de signaux M.F. et A.M. (AM et FM-SG)
- Modulateur stéréophonique
- Analyseur de distorsion
- Oscilloscope
- Voltmètre électronique à C.A. et C.C. (EVM)
- Compteur de fréquence
- Bobine d'amortissement d'arrêt (100µH)
- Résistance (100kΩ)
- Condensateur céramique (200pF)

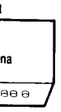
Nota: Pour **T201 (A.M.) F.I.**, **L203 (bobine oscil. de MA)** et **L251 (bobine ANT LW)**, des éléments réglés sont fournis. Aussi, ne pas tourner les noyaux de ces piecès.



ler "R" Betriebsart
ilotsignal 10%.
Pilot (19kHz)



er "R" Betriebsart
lotsignal 10%.
ilot (19kHz)



FRANÇAIS

■ CARACTERISTIQUES (Sujet à changement sans préavis)

(DIN 45 500)

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S/B 26 dB	1,2 μV (75Ω)
S/B 20 dB	0,9 μV (75Ω)
Sensibilité stéréo au seuil de 46 dB, IHF	28 μV/75Ω
Distorsion harmonique totale	
MONO (normal)	0,02%
STEREO (normal)	0,03%
Signal/Bruit	
MONO	72 dB (80 dB, IHF)
STEREO	66 dB (73 dB, IHF)
Réponse de fréquence	4 Hz~18 kHz, +0,5 dB~−1,5 dB
Sélectivité alternée par canal	
normal ±400 kHz	50 dB
super narrow ±200 kHz	25 dB
Taux de capture	1,0 dB
Rejection d'image à 98 MHz	100 dB
Rejection FI à 98 MHz	100 dB
Rejection de réponse parasite à 98 MHz	110 dB
Suppression AM	55 dB
Séparation stéréophonique	
1 kHz	60 dB
10 kHz	45 dB
Fuite de porteuse	
19 kHz	−55 dB (−60 dB, IHF)
38 kHz	−40 dB (−45 dB, IHF)
Equilibrage de canaux (250 Hz~6,300 Hz)	±1,0 dB
Point de limite	0,85 μV
Largeur de bande	
Amplificateur FI	180 kHz
Démodulateur FM	1000 kHz
Bornes d'antenne	75Ω (asymétrique)

■ SECTION SYNTONISATEUR AM (ST-G50)

Gamme de fréquence
(Pour l'Europe, l'Afrique et l'Australie)
522 kHz~1611 kHz (9 kHz par palier)
530 kHz~1610 kHz (10 kHz par palier)
(Pour l'Arabie Saoudite et les autres pays)
531 kHz~1620 kHz (9 kHz par palier)
530 kHz~1610 kHz (10 kHz par palier)

Sensibilité (S/B 20 dB)	20 μV, 300 μV/m
Sélectivité à 999 kHz(±9 kHz)	50 dB
Réjection d'image à 999 kHz	40 dB
Réjection FI à 999 kHz	60 dB

■ SECTION SYNTONISATEUR AM (ST-G50L)

Gamme de fréquence	
PO (MW)	522 kHz~1611 kHz (9 kHz par palier)
	530 kHz~1610 kHz (10 kHz par palier)
GO (LW)	155 kHz~353 kHz (9 kHz par palier)
	153 kHz~351 kHz (−2 kHz shift)
Sensibilité (S/B 20 dB)	
PO (MW)	20 μV, 300 μV/m
GO (LW)	50 μV
Sélectivité (±9 kHz)	
PO (MW) (à 999 kHz)	50 dB
GO (LW) (à 254 kHz)	50 dB
Réjection d'image	
PO (MW) (à 999 kHz)	40 dB
GO (LW) (à 254 kHz)	40 dB
Réjection FI	
PO (MW) (à 999 kHz)	60 dB
GO (LW) (à 254 kHz)	35 dB

■ DIVERS

Tension de sortie	0,3V (0,6V IHF)
Consommation	9W
Alimentation	
Pour l'Europe	CA 50 Hz/60 Hz, 220V
Autres	CA 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensions (L×H×Pr)	430 × 64 × 241 mm
Poids	2,2 kg

Remarque:
On mesure la distorsion harmonique totale au moyen d'un analyseur de spectre digital (Système H.P. 3045).

■ MESURAGES ET REGLAGES

A.M./M.F. (ST-G50)
LW/M.W./M.F. (ST-G50L)

Positionnements des commandes et équipement utilisé

- Générateur de signaux M.F. et A.M. (AM et FM-SG)
- Modulateur stéréophonique
- Analyseur de distorsion
- Oscilloscope
- Voltmètre électronique à C.A. et C.C. (EVM)
- Compteur de fréquence
- Bobine d'amortissement d'arrêt (100μH)
- Résistance (100kΩ)
- Condensateur céramique (200pF)

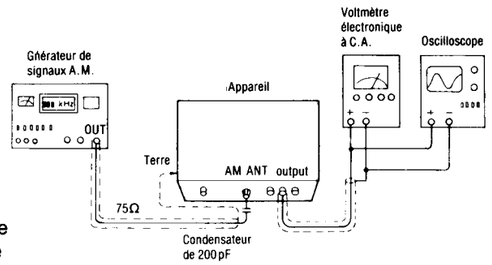
Nota: Pour **T201 (A.M.) F.I.**, **L203 (bobine oscil. de MA)** et **L251 (bobine ANT LW)**, des éléments réglés sont fournis. Aussi, ne pas tourner les noyaux de ces piecès.

REGLAGE DE RE-AM (MW)

CONDITION DU GENERATEUR DE SIGNAUX A.M.
Modulation..... 30%
Fréquence de modulation 400Hz

1. Le raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur la position "**AM (MW)**".
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **612kHz**.
4. Régler **L202** pour une sortie maximale.
5. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **1503kHz**.
6. Régler **CT201** pour une sortie maximale.
7. Répéter les étapes 3.~6.

Nota: Le niveau d'entrée d'antenne doit être aussi bas que possible étant libéré de la commande automatique de gain.

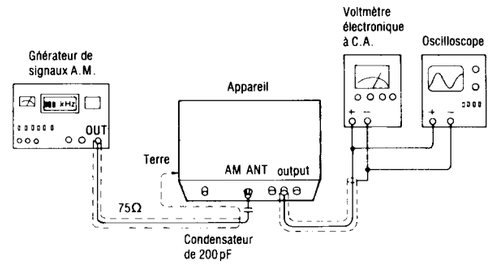


REGLAGE DE RE-LW (ST-G50L seulement)

CONDITION DU GENERATEUR DE SIGNAUX A.M.
Modulation..... 30%
Fréquence de modulation 400Hz

1. Le raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur la position "**LW**".
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **155kHz**.
4. Régler **L252** pour une sortie maximale.
5. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **353kHz**.
6. Régler **CT251** pour une sortie maximale.
7. Répéter les étapes 3.~6.

Nota: Le niveau d'entrée d'antenne doit être aussi bas que possible étant libéré de la commande automatique de gain.

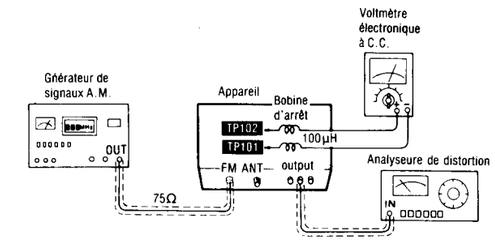


REGLAGE DE DISTORSION MONOPHONIQUE M.F.

CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation..... 100%
Fréquence de modulation 1kHz
Niveau de sortie..... 66dB

1. Le raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur la position "**FM**" (M.F.) et "**normal**".
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **100,10MHz**.
4. Régler le noyau de **T101** de telle sorte que la tension mesurée sur le mode de signaux soit de **0mV** dans une plage de 300mV.
5. Ajuster **T102** de telle que le facteur de distorsion du canal de gauche soit minimisé.
6. Répéter les étapes 4 et 5 quelques fois.
7. Sássurer que les facteurs de distorsion du canal de gauche et du canal de droite soient sensiblement les mêmes l'un par rapport à l'autre .

Nota: Le tournevis de réglage utilisé devra être fait en résines.

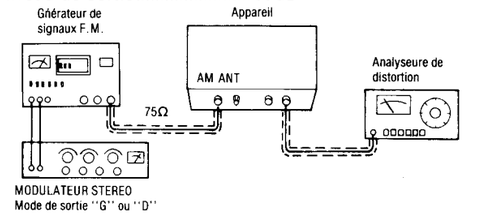


REGLAGE DE DISTORSION STEREO M.F.

CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation..... Mode "G" ou mode "D" à 45%, Signal de commande à 10%.
Fréquence de modulation ..... 1kHz, Pilot (19kHz)
Niveau de sortie..... 66dB

1. Le raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur la position "**FM**" (M.F.).
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur **100.10MHz**.
4. Ajuster **T1** de telle que le facteur de distorsion du canal de gauche soit minimisé.
5. Sássurer que les facteurs de distorsion du canal de gauche et du canal de droite soient sensiblement les mêmes l'un par rapport à l'autre .

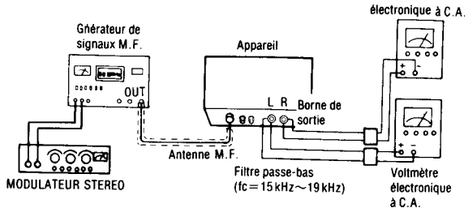
Nota: Le tournevis de réglage utilisé devra être fait en résines.



REGLAGE DE SEPARATION

1. La raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur la position "FM" (M.F.).
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur 100,10MHz.
4. Ajuster **VR301** de telle sorte que la sortie de droite soit minimisée lorsque le modulateur stéréo est sur le mode "G" (modulation du canal de gauche).

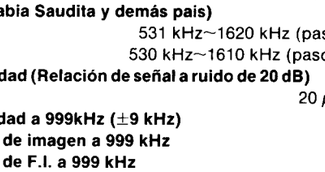
CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation..... Mode "G" ou mode "D" à 45%, Signal de commande à 10%.
Fréquence de modulation ..... 1kHz, Pilot (19kHz)
Niveau de sortie..... 66dB



REGLAGE DU NIVEAU D'INTENSITE DE REPEDTION

1. Le raccordement de l'équipement d'essai est montré sur l'illustration.
2. Régler l'appareil sur la position "FM" et "normal".
3. Ajuster le réglage de l'affichage de radiofréquence et du générateur de signaux sur 100,10MHz.
4. Changer l'affichage à cristaux liquides de "**fréquence**" sur "**dB**" en appuyant sur la touche de signaux FM (M.F.).
5. Ajuster **VR101** de telle sorte que 54dB soit indiqué.
6. S'assurer que le niveau d'intensité de réception soit de **22~38dB** lorsque l'entrée est de **30dB**.

CONDITION DU GENERATEUR DE SIGNAUX M.F.
Modulation..... 30%.
Fréquence de modulation 1kHz
Niveau de sortie..... 66dB



ESPAÑOL

■ ESPECIFICACIONES (Estas especificationes están sujetas a cualquier cambio sin previo eviso.)

(DIN 45 500)

■ SECCION PARA SINTONIZADOR FM

Gama de frecuencias	87,50~108,00 MHz
	87,525~108,00 MHz (+25 kHz pasos)
Sensibilidad	1,5 μV (IHF, utilizable)
Señal a ruido 30 dB	1,3 μV (75Ω)
Señal a ruido 26 dB	1,2 μV (75Ω)
Señal a ruido 20 dB	0,9 μV (75Ω)
Sensibilidad de acallamiento estíreo de 46 dB IHF	28 μV/75Ω
Distorsión armónica total	
MONO. (MONO) (normal)	0,02%
ESTEREO (STEREO) (normal)	0,03%
Relación de señal a ruido	
MONO. (MONO)	72 dB (80 dB, IHF)
ESTEREO (STEREO)	66 dB (73 dB, IHF)
Respuesta de frecuencia	4 Hz~18 kHz, +0,5 dB~−1,5 dB
Selectividad alternada de canal	
normal ±400 kHz	50 dB
super narrow ±200 kHz	25 dB
Relación de captura	1,0 dB
Rechazo de imagen a 98 MHz	100 dB
Rechazo de F.I. a 98 MHz	100 dB
Rechazo de respuesta espuria a 98 MHz	110 dB
Supresión AM	55 dB
Separación estereofónica	
1 kHz	60 dB
10 kHz	45 dB
Fuga de onda portadora	
19 kHz	−55 dB (−60 dB, IHF)
38 kHz	−40 dB (−45 dB, IHF)
Equilibrio de canales 250 Hz~6 300 Hz	±1,0 dB
Punto de límite	0,85 μV
Ancho de banda	
Amplificador FI	180 kHz
Demodulador FM	1000 kHz
Bornes de antena	75Ω (no equilibrado)

■ SECCION PARA SINTONIZADOR AM (ST-G50)

Gama de frecuencias	
(Para países europeos, Africa del Sur y Australia)	
	522 kHz~1611 kHz (9 kHz pasos)
	530 kHz~1610 kHz (10 kHz pasos)
(Para Arabia Saudita y demás pais)	
	531 kHz~1620 kHz (pasos de 9 kHz)
	530 kHz~1610 kHz (pasos de 10 kHz)
Sensibilidad (Relación de señal a ruido de 20 dB)	20 μV, 300 μV/m
Selectividad a 999kHz (±9 kHz)	50 dB
Rechazo de imagen a 999 kHz	40 dB
Rechazo de F.I. a 999 kHz	60 dB

■ SECCION PARA SINTONIZADOR AM (ST-G50L)

Gama de frecuencias	
MW	522 kHz~1611 kHz (pasos de 9 kHz)
	530 kHz~1610 kHz (pasos de 10 kHz)
LW	155 kHz~353 kHz (pasos de 9 kHz)
	153 kHz~351 kHz (desviacion −2 kHz)
Sensibilidad (Relación de señal a ruido de 20 dB)	
OM (MW)	20 μV, 300 μV/m
OL (LW)	50 μV
Selectividad (±9 kHz)	
OM (MW) (a 999 kHz)	50 dB
OL (LW) (a 254 kHz)	50 dB
Rechazo de imagen	
OM (MW) (a 999 kHz)	40 dB
OL (LW) (a 254 kHz)	40 dB
Rechazo de F.I.	
OM (MW) (a 999 kHz)	60 dB
OL (LW) (a 254 kHz)	35 dB

■ GENERAL

Voltaje de salida	0,3V (0,6V IHF)
Consumo de energía	9W
Alimentación de energía	
Para Europa continental	CA 50 Hz/60 Hz, 220V
Para otros paises	CA 50 Hz/60 Hz, 110V/127V/220V/240V
Dimensiones (An.×Al.×Prof.)	430 × 64 × 241 mm
Peso	2,2 kg

Nota:
La distorsión armónica total se mide con el analizador de espectro digital (sistema H.P. 3045).

■ MEDICIONES Y AJUSTES

AM/FM (ST-G50)
LW/MW/FM (ST-G50L)

Posiciones de control y equipo usado

- Generador de señales de AM y FM (AM & FM-SG)
- Modulador estéreo
- Analizador de distorsiones
- Osciloscopio
- Voltímetro electrónico de CA y CC (EVM)
- Frecuencimetro
- Bobina de choque (100μH)
- Resistor (100kΩ)
- Capacitor cerámico (200pF)

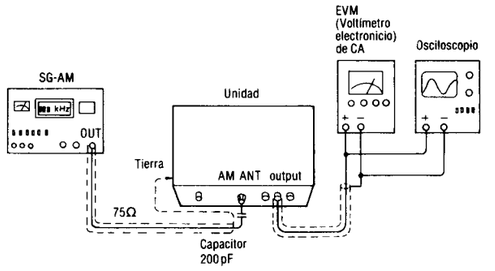
Nota: Para **T201 (AM-IFT)**, **L203 (bobina de OSC. AM)** y **L251 (bobina antena LO)** son suministradas piezas ajustadas. Por lo tanto, no gire los núcleos de estas piezas.

AJUSTE DE AM (OM)-RF

1. La conexión del equipo de pruebas se muestra en la figura.
2. Ajustar la unidad a la posición "**AM (OM)**".
3. Colocar la puesta del indicador de radiofrequencia y generador de señales a **612kHz**.
4. Ajustar **L202** para salida máxima.
5. Colocar la puesta del indicador de radiofrequencia y generador de señales a **1503kHz**.
6. Ajustar **CT201** para salida máxima.
7. Repetir los pasos 3.~6.

Nota:
El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación..... 30%
Frecuencia de modulación..... 400Hz

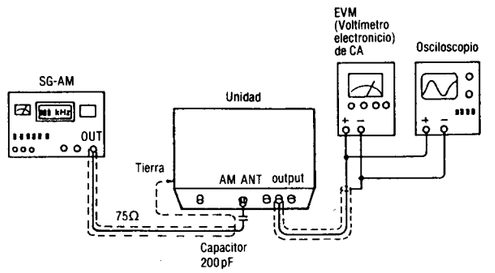


AJUSTE DE OL-RF (Sólo ST-G50L)

1. La conexión del equipo de pruebas se muestra en la figura.
2. Ajustar la unidad a la posición "**LW**".
3. Poner el indicador de la radio y el generador de señales en **155kHz**.
4. Ajuste **L252** para salida máxima.
5. Poner el indicador de la radio y el generador de señales en **353kHz**.
6. Ajuste **CT251** para salida máxima.
7. Repita los pasos 3.~6.

Nota:
El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación..... 30%
Frecuencia de modulación..... 400Hz



AJUSTE DE DE

1. La conexión d
figura.
2. Ajustar la uni
3. Colocar la pue
generador de
4. Ajustar el nuc
medido en mo
5. Ajustar **T102** c
de CH I se mi
6. Repetir los pa
7. Asegurarse de
y CH D sean c

Nota:
El destornillad
de resina.

AJUSTE DE DE

1. La conexión d
figura.
2. Ajustar la uni
3. Colocar la pue
generador de
4. Ajustar **T1** de
CH I se minim
5. Asegurarse de
y CH D sean c

Nota:
El destornillad
de resina.

AJUSTE DE S

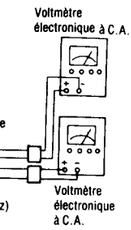
1. La conexión
figura.
2. Ponga la uni
3. Colocar la pu
generador de
4. Ajuste **VR301**
minimizada c
la modalidad

AJUSTE DE NI

1. La conexión d
figura.
2. Ponga la unid
3. Coloque la pu
generador de
4. Cambie el ind
pulsando el b
5. Ajuste **VR101**
6. Asegúrese de
22~38dB cua

UX M.F.
' ou mode "D" à
nal de commande

ot (19kHz)



IAUX M.F.

o eviso.)

5 dB (–60 dB, IHF)
0 dB (–45 dB, IHF)
±1,0 dB
0,85 μV

180 kHz
1000 kHz
Ω (no equilibrado)

AM (ST-G50)

ralia)
kHz (9 kHz pasos)
Hz (10 kHz pasos)

z (pasos de 9 kHz)
(pasos de 10 kHz)
dB)
20 μV, 300 μV/m
50 dB
40 dB
60 dB

■ SECCION PARA SINTONIZADOR AM (ST-G50L)

Gama de frecuencias
- **MW** 522 kHz~1611 kHz (pasos de 9 kHz)
  530 kHz~1610 kHz (pasos de 10 kHz)
- **LW** 155 kHz~353 kHz (pasos de 9 kHz)
  153 kHz~351 kHz (desviacion –2 kHz)

Sensibilidad (Relación de señal a ruido de 20 dB)
- **OM (MW)** 20 μV, 300 μV/m
- **OL (LW)** 50 μV

Selectividad (±9 kHz)
- **OM (MW) (a 999 kHz)** 50 dB
- **OL (LW) (a 254 kHz)** 50 dB

Rechazo de imagen
- **OM (MW) (a 999 kHz)** 40 dB
- **OL (LW) (a 254 kHz)** 40 dB

Rechazo de F.I.
- **OM (MW) (a 999 kHz)** 60 dB
- **OL (LW) (a 254 kHz)** 35 dB

■ GENERAL

Voltaje de salida 0,3V (0,6V IHF)
Consumo de energía 9W
Alimentación de energía
- **Para Europa continental** CA 50 Hz/60 Hz, 220V
- **Para otros paises** CA 50 Hz/60 Hz, 110V/127V/220V/240V

Dimensiones (An.×Al.×Prof.) 430 × 64 × 241 mm
Peso 2,2 kg

Nota:
La distorsión armónica total se mide con el analizador de espectro digital (sistema H.P. 3045).

■ MEDICIONES Y AJUSTES

AM/FM (ST-G50)
LW/MW/FM (ST-G50L)

Posiciones de control y equipo usado

- Generador de señales de AM y FM (AM & FM-SG)
- Modulador estéreo
- Analizador de distorsiones
- Osciloscopio
- Voltímetro electrónico de CA y CC (EVM)
- Frecuencimetro
- Bobina de choque (100μH)
- Resistor (100kΩ)
- Capacitor cerámico (200pF)

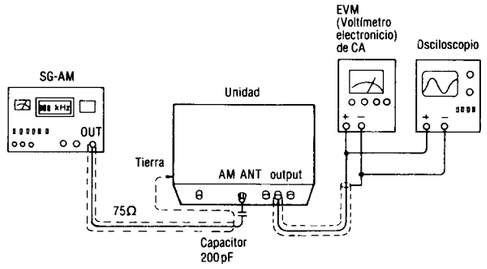
Nota: Para **T201 (AM-IFT)**, **L203 (bobina de OSC. AM)** y **L251 (bobina antena LO)** son suministradas piezas ajustadas. Por lo tanto, no gire los núcleos de estas piezas.

AJUSTE DE AM (OM)-RF

1. La conexión del equipo de pruebas se muestra en la figura.
2. Ajustar la unidad a la posición "**AM (OM)**".
3. Colocar la puesta del indicador de radiofrequencia y generador de señales a **612kHz**.
4. Ajustar **L202** para salida máxima.
5. Colocar la puesta del indicador de radiofrequencia y generador de señales a **1503kHz**.
6. Ajustar **CT201** para salida máxima.
7. Repetir los pasos 3.~6.

Nota:
El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación 30%
Frecuencia de modulación 400Hz

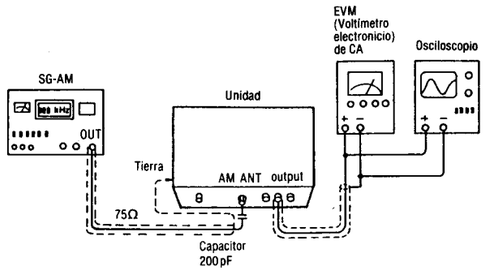


AJUSTE DE OL-RF (Sólo ST-G50L)

1. La conexión del equipo de pruebas se muestra en la figura.
2. Ajustar la unidad a la posición "**LW**".
3. Poner el indicador de la radio y el generador de señales en **155kHz**.
4. Ajuste **L252** para salida máxima.
5. Poner el indicador de la radio y el generador de señales en **353kHz**.
6. Ajuste **CT251** para salida máxima.
7. Repita los pasos 3.~6.

Nota:
El nivel de entrada de antena ha de ser lo más bajo posible estando libre de AGC (control automático de ganancia).

CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación 30%
Frecuencia de modulación 400Hz

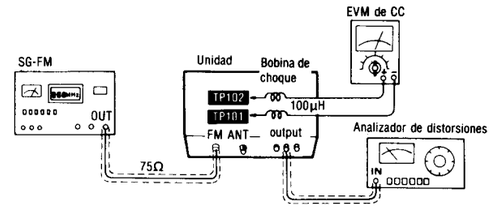


AJUSTE DE DISTORSION MONO FM

1. La conexión del equipo de pruebas se muestra en la figura.
2. Ajustar la unidad a la posición "**FM**"y "**normal**".
3. Colocar la puesta del indicador de radiofrecuencia y generador de señales a **100,10MHz**.
4. Ajustar el nućleo de **T101** de manera que el voltaje medido en modalidad de señal sea **0mV**.
5. Ajustar **T102** de manera que el factor de distorsión de CH I se minimice.
6. Repetir los pasos 4 y 5 algunas veces.
7. Asegurarse de que los factores de distorsión de CH I y CH D sean casi los mismos uno con el otro.

Nota:
El destornillador de ajuste usado debe estar hecho de resina.

CONDICION DE GENERADOR DE SEÑALES DE FM
Modulación 100%
Frecuencia de modulación 1kHz
Nivel de salida 66dB

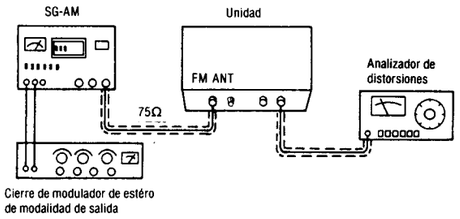


AJUSTE DE DISTORSION ESTERO FM

1. La conexión del equipo de pruebas se muestra en la figura.
2. Ajustar la unidad a la posición "**FM**".
3. Colocar la puesta del indicador de radiofrecuencia y generador de señales a **100,10MHz**.
4. Ajustar **T1** de manera que el factor de distorsión de CH I se minimice.
5. Asegurarse de que los factores de distorsión de CH I y CH D sean casi los mismos uno con el otro.

Nota:
El destornillador de ajuste usado debe estar hecho de resina.

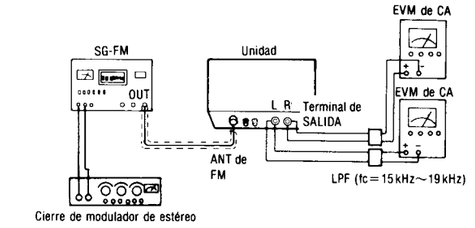
CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación ..... Modalidad de "I" o modalidad de "D" 45%, Piloto 10%.
Frecuencia de modulación ..... 1kHz, Piloto (19kHz)
Nivel de salida 66dB



AJUSTE DE SEPARACION

1. La conexión del equipo usado se muestra en la figura.
2. Ponga la unidad en la posición "FM".
3. Colocar la puesta del indicador de radiofrecuencia y generador de señales a 100,10MHz.
4. Ajuste **VR301** de manera que la salida de D quede minimizada cuando el modulator de estéreo esté en la modalidad I (modulación de CH I).

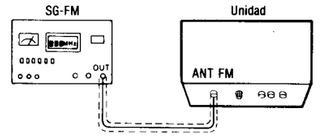
CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación ..... Modalidad de "I" o modalidad de "D" 45%, Piloto 10%.
Frecuencia de modulación ..... 1kHz, Piloto (19kHz)
Nivel de salida 66dB



AJUSTE DE NIVEL DE INTENSIDAD DE SEÑAL

1. La conexión del equipo de prueba se muestra en la figura.
2. Ponga la unidad en la posición "FM" y "normal"..
3. Coloque la puesta del indicador de radiofrecuencia y generador de señales a 100,10MHz.
4. Cambie el indicador LCD de "**frecuencia**" a "**dB**" pulsando el botón de señal de FM.
5. Ajuste **VR101** de manera que se indiquen 54dB.
6. Asegúrese de que el nivel de intensidad de señal es **22~38dB** cuando la entrada sea **30dB**.

CONDICION DE GENERADOR DE SEÑALES DE AM
Modulación 30%
Frecuencia de modulación 1kHz
Nivel de salida 66dB



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